

professional
AKAI

DPS16
DIGITAL PERSONAL STUDIO

WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

Operator's Manual

WARNING!!

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

1-En



THE SYMBOLS ARE RULED BY UL STANDARDS (U.S.A.)



The lightning flash with arrowhead symbol , within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

5B-En

WARNING: WHEN USING ELECTRIC PRODUCTS, BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING:**WARNING**

Power requirements for electrical equipment vary from area to area. Please ensure that your DPS16 meets the power requirements in your area. If in doubt, consult a qualified electrician or AKAI professional dealer.

120 VAC	@ 60 Hz for USA and Canada
220~240 VAC	@ 50 Hz for Europe

PROTECTING YOURSELF AND THE DPS16

- Never touch the AC plug with wet hands.
- Always disconnect the DPS16 from the power supply by pulling on the plug, not the cord.
- Allow only an AKAI professional dealer or qualified professional engineer to repair or reassemble the DPS16. Apart from voiding the warranty, unauthorized engineers might touch live internal parts and receive a serious electrical shock.
- Do not put, or allow anyone to put any object, especially metal objects, into the DPS16.
- Use only a household AC power supply. Never use a DC power supply.
- If water or any other liquid is spilled into or onto the DPS16, disconnect the power, and call your dealer.
- Make sure that the unit is well-ventilated, and away from direct sunlight.
- To avoid damage to internal circuitry, as well as the external finish, keep the DPS16 away from sources of direct heat (stoves, radiators, etc.).
- Avoid using aerosol insecticides, etc. near the DPS16. They may damage the surface, and may ignite.
- Do not use denatured alcohol, thinner or similar chemicals to clean the DPS16. They will damage the finish.
- Modification of this equipment is dangerous, and can result in the functions of the DPS16 being impaired. Never attempt to modify the equipment in any way.
- Make sure that the DPS16 is always well-supported when in use (either in a specially-designed equipment rack, or a firm level surface).
- In order to assure optimum performance of your DPS16, select the setup location carefully, and make sure the equipment is used properly. Avoid setting up the DPS16 in the following locations:
 1. In a humid or dusty environment
 2. In a room with poor ventilation
 3. On a surface which is not horizontal
 4. Inside a vehicle such as a car, where it will be subject to vibration
 5. In an extremely hot or cold environment

WARNING
THIS APPARATUS MUST BE EARTHED
IMPORTANT

This equipment is fitted with an approved non-rewireable UK mains plug.

To change the fuse in this type of plug proceed as follows:

- 1) Remove the fuse cover and old fuse.
- 2) Fit a new fuse which should be a BS1362 5 Amp A.S.T.A or BSI approved type.
- 3) Refit the fuse cover.

If the AC mains plug fitted to the lead supplied with this equipment is not suitable for your type of AC outlet sockets, it should be changed to an AC mains lead, complete with moulded plug, to the appropriate type. If this is not possible, the plug should be cut off and a correct one fitted to suit the AC outlet. This should be fused at 5 Amps.

If a plug without a fuse is used, the fuse at the distribution board should NOT BE GREATER than 5 Amp.

PLEASE NOTE: THE SEVERED PLUG MUST BE DESTROYED TO AVOID A POSSIBLE SHOCK HAZARD SHOULD IT BE INSERTED INTO A 13 AMP SOCKET ELSEWHERE.

The wires in this mains lead are coloured in accordance with the following code:

GREEN and YELLOW	—EARTH
BLUE	—NEUTRAL
BROWN	—LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, please proceed as follows:

The wire which is coloured GREEN and YELLOW must be connected to the terminal which is marked with the letter E or with the safety earth symbol \downarrow or coloured GREEN or coloured GREEN and YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

THIS APPARATUS MUST BE EARTHED

Ensure that all the terminals are securely tightened and no loose strands of wire exist.

Before replacing the plug cover, make certain the cord grip is clamped over the outer sheath of the lead and not simply over the wires.

6D-En

VENTILATION

Do not prevent the unit's ventilation, especially by placing the unit on the soft carpet, in a narrow space, or by placing objects on the unit's chassis—top, side, or rear panels. Always keep the unit's chassis at least 10 centimeters from any other objects.

31C-En

CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

32-En

FCC WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

21B-En

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

27-En

AVIS POUR LES ACHETEURS CANADIENS DU DPS16

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

27-F

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WARNING

WARRANTY

AKAI professional M.I. Corp. warrants its products, when purchased from an authorized "AKAI professional" dealer, to be free from defects in materials and workmanship for a period of 12 (twelve) months from the date of purchase. Warranty service is effective and available to the original purchase only, and only on completion and return of the AKAI professional Warranty Registration Card within 14 days of purchase.

Warranty coverage is valid for factory-authorized updates to AKAI professional instruments and their software, when their installation is performed by an authorized AKAI professional Service Center, and a properly completed Warranty Registration has been returned to your "AKAI professional" dealer.

To obtain service under this warranty, the product must, on discovery of the defect, be properly packed and shipped to the nearest AKAI professional Service Center. The party requesting warranty service must provide proof of original ownership and date of purchase of the product.

If the warranty is valid, AKAI professional will, without charge for parts or labor, either repair or replace the defective part(s). Without a valid warranty, the entire cost of the repair (parts and labor) is the responsibility of the product's owner.

AKAI professional warrants that it will make all necessary adjustments, repairs and replacements at no cost to the original owner within 12 (twelve) months of the purchase date if:

- 1) The product fails to perform its specified functions due to failure of one or more of its components.
- 2) The product fails to perform its specified functions due to defects in workmanship.
- 3) The product has been maintained and operated by the owner in strict accordance with the written instructions for proper maintenance and use as specified in this Operator's Manual.

Before purchase and use, owners should determine the suitability of the product for their intended use, and owner assumes all risk and liability whatsoever in connection therewith. AKAI professional shall not be liable for any injury, loss or damage, direct or consequential, arising out of use, or inability to use the product.

The warranty provides only those benefits specified, and does not cover defects or repairs needed as a result of acts beyond the control of AKAI professional, including but not limited to:

- 1) Damage caused by abuse, accident, negligence. AKAI professional will not cover under warranty any original factory disk damaged or destroyed as a result of the owner's mishandling.
- 2) Damage caused by any tampering, alteration or modification of the product: operating software, mechanical or electronic components.
- 3) Damage caused by failure to maintain and operate the product in strict accordance with the written instructions for proper maintenance and use as specified in this Operator's Manual.
- 4) Damage caused by repairs or attempted repairs by unauthorized persons.
- 5) Damage caused by fire, smoke, falling objects, water or other liquids, or natural events such as rain, floods, earthquakes, lightning, tornadoes, storms, etc.
- 6) Damage caused by operation on improper voltages.

IMPORTANT NOTE: This warranty becomes void if the product or its software is electronically modified, altered or tampered with in any way.

AKAI professional shall not be liable for costs involved in packing or preparing the product for shipping, with regard to time, labor, or materials, shipping or freight costs, or time or expense involved in transporting the product to and from AKAI professional Authorized Service Center or Authorized Dealer.

AKAI professional will not cover under warranty an apparent malfunction that is determined to be user error, or owner's inability to use the product.

THE DURATION OF ANY OTHER WARRANTIES, WHETHER IMPLIED OR EXPRESS, INCLUDING BUT NOT LIMITED TO THE IMPLIED CONDITION OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

AKAI professional hereby excludes incidental or consequential damages, including but not limited to:

- 1) Loss of time.
- 2) Inconvenience
- 3) Delay in performance of the Warranty.
- 4) The loss of use of the product.
- 5) Commercial loss.
- 6) Breach of any express or implied warranty, including the Implied Warranty of Merchantability, applicable to this product.

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Chapter 1: Overview of the DPS16

This chapter describes the features of the DPS16 and identifies its parts and functions. It also describes the DPS16's unique conceptual design and operating method.

Features of the DPS16

The following list describes the features of the DPS16:

- The DPS16 features a recording section which is capable of 10 track simultaneous recording and 16 track simultaneous playback, a mixer section of 26 channels, and an internal effect section that enables you to use four effect channels simultaneously. In this way, the DPS16 can serve as stand-alone music production equipment that handles everything from recording parts to overdubbing, signal processing, and mixdown.
- The DPS16 supports various recording formats: the standard, non-compressed 16-bit/44.1kHz; 16-bit/48kHz; and non-compressed 24-bit/96kHz for the first time for this type of recorder.
- The DPS16 provides you with 16 recording/playback tracks (physical tracks) and 250 data storage tracks (virtual tracks). Switching among virtual tracks (that are assigned to physical tracks) allows you to record multiple takes of the same part or phrase and later select the best take for mixdown.
- The mixer section is fully loaded with 3-band EQ, Pan, AUX send 1–4, Level, and on/off capabilities. In addition to 16 TRACK MIX channels that control the output from the recorder tracks, 10 INPUT MIX channels are available to directly control input signals from the INPUT jacks. You can mix down the signal from a connected synthesizer and/or sampler.
- Six Q-Link knobs enable you to control mix parameters and effect parameters directly and intuitively without interrupting the flow of your work.
- The DPS16 has an internal IDE hard disk and allows you to connect up to six SCSI devices (such as external hard disks and MO drives) to the SCSI connector on the rear panel for recording and data backup. Connecting a CD-R/RW drive that supports Multi-Media Commands (MMC) enables you to write audio tracks of the DPS16 to a CD-R/RW disc.
- Connecting a MIDI device, such as a MIDI sequencer, allows for master or slave sync operation. Using MIDI Machine Control (MMC) also enables you to remote-control the transport section and the selection/cancellation of recording tracks of the DPS16 from a connected external device.
- Up to 100 locate points in a song can be named and stored. You can immediately jump to any specified locate point using a simple operation. A “Direct Locate function” that assigns locate points to the keys on the front panel is also available.
- The DPS16 offers an improved and integrated waveform-level editing function. You can specify track(s) to edit and perform various editing operations, such as Copy & Paste, Cut & Paste, and Copy & Insert.
- The DPS16 is equipped with a scene memory that stores mix settings. You can create several mix configurations with different balance and EQ settings. You can also adjust the mix-related parameters via MIDI. Combining this with a MIDI sequencer will enable a mix automation.
- Four-channel multi-effects (optional) selected from among 44 types of effects can be routed via AUX send/return 1–4, or can be inserted to a specified channel.

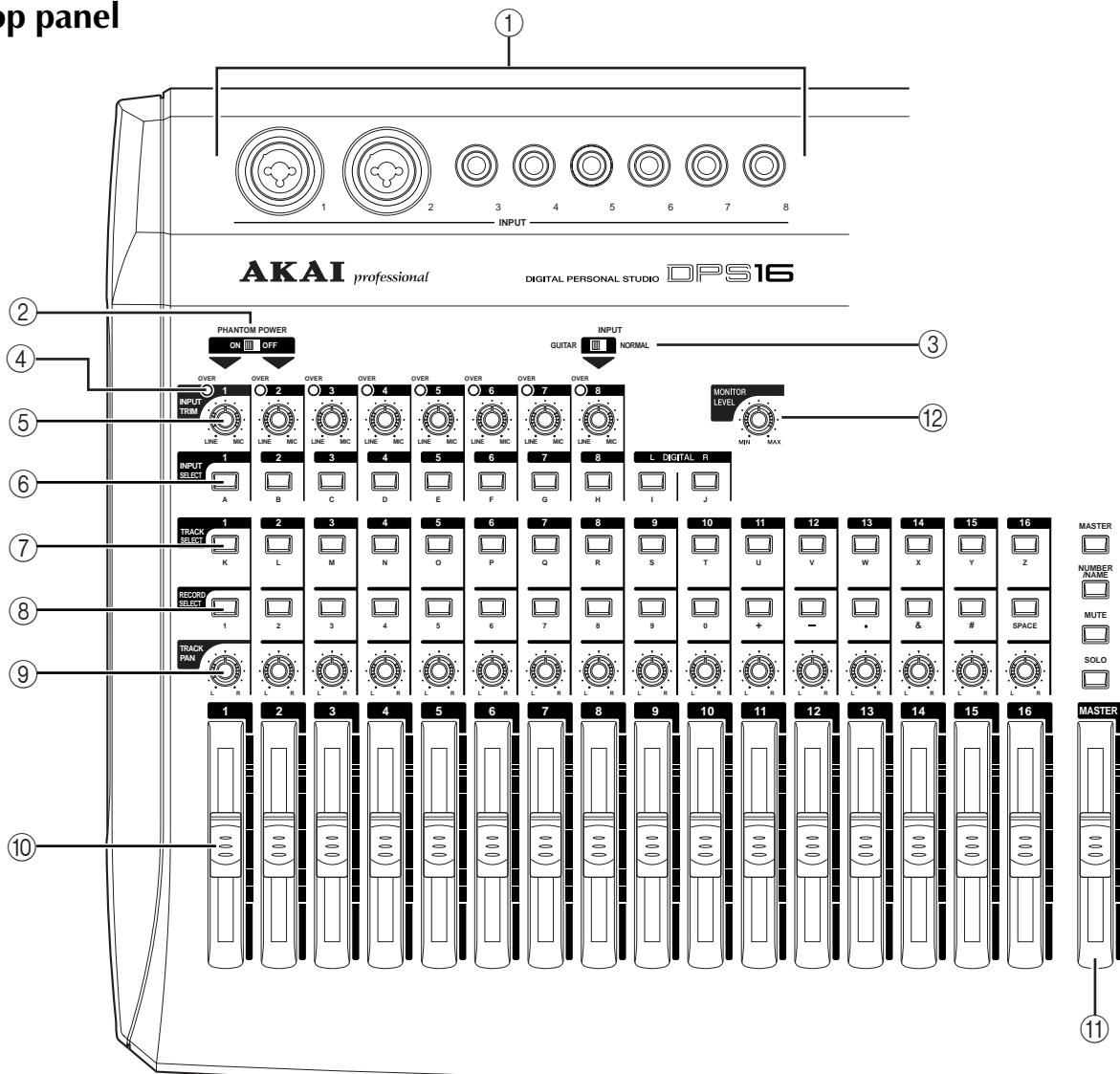
About Q-Link

Q-Link is a group of functions that enable intuitive, quick, and easy operation. The DPS16 uses Q-Link to interface with the Q-Link knobs adjacent to the display (enabling you to mix as if you were using an analog mixer). Q-Link and Q-Link functions also allow you to perform various tasks quickly in the Main screen.

Parts and functions

This section describes part names and functions. The names of the controls on the top panel are shown in brackets [] to differentiate them from those buttons and knobs shown on the display.

Top panel



① INPUT jacks 1–8

Connect line-level electronic instruments, such as a synthesizer, and microphones to these analog input jacks. Inputs 1–2 are both XLR-type and TRS phone jacks, and inputs 3–8 are TRS phone jacks. All of them accept balanced and unbalanced signals.

② [PHANTOM POWER] switch

This switch supplies +48V phantom power to Inputs 1 and 2 (when XLR-type jacks are used). Turn on this switch when you connect a condenser microphone or direct box that needs external phantom power.

►NOTE : Before turning the [PHANTOM POWER] switch on or off, make sure that all channel faders are lowered or the power to the DPS16 is turned off.

③ GUITAR/NORMAL switch

This switch enables you to select input impedance for Input 8. Turn this switch to GUITAR to connect a high-impedance electric guitar, and turn this to NORMAL to connect a low-impedance microphone or line-level device.

④ OVER indicators

These indicators light up when the signals input from Input jacks 1–8 clip.

⑤ [INPUT TRIM] controls 1–8

Use these controls to adjust the gain of the signals (ranging from mic level to line-level) input from Input jacks 1–8.

⑥ [INPUT SELECT] keys

These keys are used to select input signals and mixer channels.

⑦ [TRACK SELECT] keys

These keys are used to select edit tracks and mixer channels.

⑧ [RECORD SELECT] keys

These keys are used to select recording tracks and edit tracks.

⑨ [TRACK PAN] knobs

These knobs are used to control the panpot positions of the tracks.

⑩ Channel faders

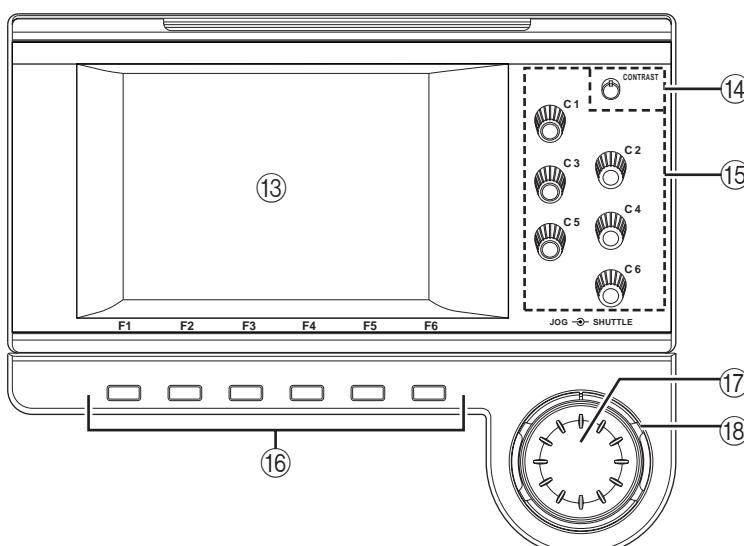
These faders are used to control the levels of the tracks.

⑪ [MASTER] fader

This fader is used to control the master level of the mixer section (Master bus output level).

⑫ [MONITOR LEVEL] knob

This knob is used to adjust the level of monitoring signal output from the MONITOR OUT jacks. This knob setting does not affect the level of signal output from the PHONES jack.

**⑬ Display**

This LCD display indicates various information required for operating the DPS16, such as the time counter, level meter, and mix parameter settings.

⑭ [CONTRAST] knob

Enables you to adjust the display contrast.

⑮ Q-Link knobs ([C1] – [C6] knobs)

These knobs are used to directly control the parameters in the QLMC (Q-Link Mixer Control) section that appears on the light end of the display.

⑯ Function keys ([F1] – [F6] keys)

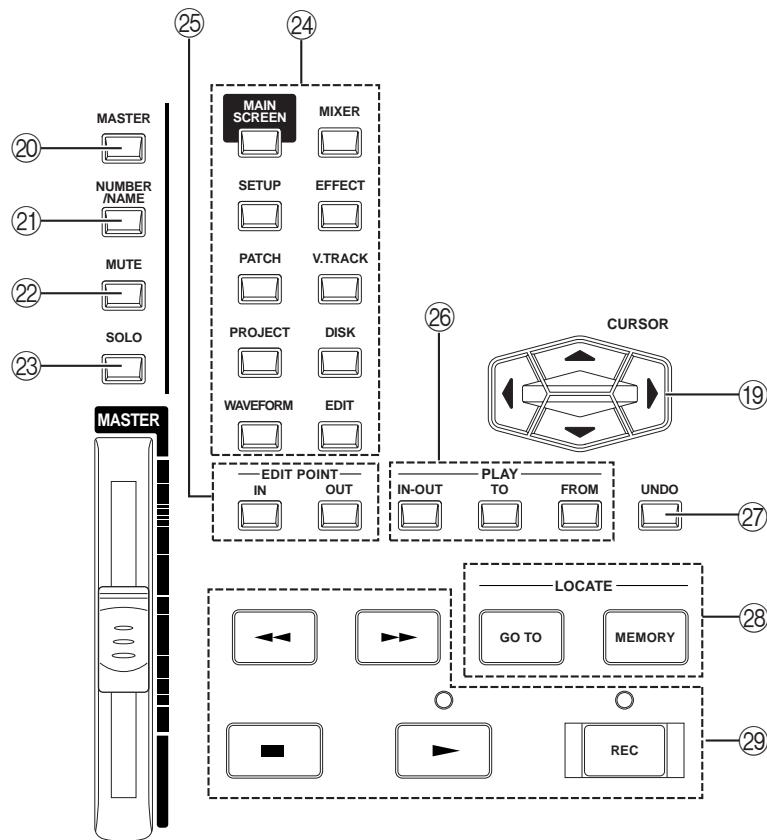
These keys are used to execute the functions that appear on the bottom row of the display or turn some parameters on or off.

⑰ [JOG] wheel

This wheel is used to change the setting or value of an item selected by the cursor on the display. It is also used to perform jog-playback in Waveform mode.

⑱ [SHUTTLE] knob

This knob is used to select one digit of a time field value to be changed that was displayed via the [JOG] wheel. It is also used to perform shuttle-playback in Waveform mode.



⑯ [CURSOR] key

The cursor key is used to move the cursor (highlighted part) on the display to select an item.

⑰ [MASTER] key

This key is used to select the master section to edit mix parameters.

⑱ [NUMBER/NAME] key

This key enables the input of numeric values and characters. When this key is turned on, the LED above this key flashes, enabling you to enter numbers, alphabetical characters, and symbols using the keys on the top panel, beneath which are corresponding labels. This key is also used to confirm entry of values and characters.

⑲ [MUTE] key

This key is used to mute particular channels in the mixer section.

⑳ [SOLO] key

This key is used to monitor particular channels in the mixer section via the MONITOR OUT jacks and PHONES jack.

✓ TIP : When you use the [MUTE] key or the [SOLO] key, press one of these keys (the key's LED lights up) and use the following keys to select the desired channels.

- [INPUT SELECT] keys INPUT MIX channels
- [TRACK SELECT] keys TRACK MIX channels
- [F1] – [F4] keys Effect return 1–4

㉑ Mode keys

These keys are used to switch among various operating modes (initial Main mode, Edit mode, Mixer mode, etc.).

㉕ Edit point keys ([IN] key/[OUT] key)

These keys are used to store IN/OUT points that are used to specify the range of the Auto Punch In/Out function and Edit function.

㉖ Point play key ([IN-OUT] key/[TO] key/[FROM] key)

These keys are used to play back data between the IN and OUT points or to play for a specified duration around the current position of the DPS16.

㉗ [UNDO] key

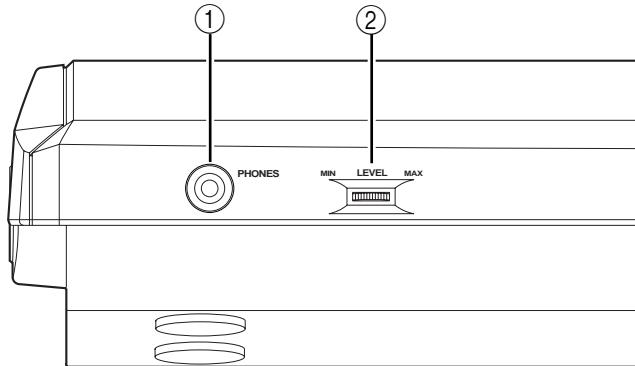
This key is used to cancel the recording or editing operation you just performed. When you press this key right after you perform recording or editing, the previous status is restored and the LED above the [UNDO] key lights up (Undo). Pressing the [UNDO] key again restores the status obtained when you performed the recording or editing operation, and the LED turns off (Redo). The range of the Undo level parameter (to set how many previous operations can be restored via the [UNDO] key) is 0 to 250. (See page 33.)

㉘ Locate keys ([GO TO] key/[MEMORY] key)

These keys are used to store the locate point (the position information in a song) or to move to any locate point.

㉙ Transport buttons

These buttons are used to control the transport operation, including recording, playback, stopping, etc. (See page 40.)

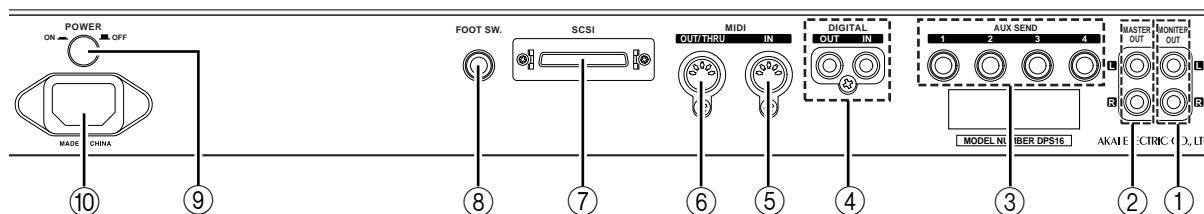
Front Panel**① PHONES (headphones) jack**

Connect monitoring headphones to this jack, which outputs the same signal as that output from the MONITOR OUT jacks on the rear panel. Use the [LEVEL] control (②) described below to adjust the output level at this jack. The level is not affected by the [MONITOR LEVEL] knob setting on the top panel.

② LEVEL (headphone level) control

This control adjusts the volume level of the headphones connected to the PHONES jack.

Rear Panel



① MONITOR OUT jacks L/R

These jacks output a monitoring signal, which is usually identical with the signal output from the MASTER OUT jacks. If the [SOLO] key is turned on, signals from soloed channels will be output.

② MASTER OUT jacks L/R

These jacks output a stereo signal that is a mix of each channel (TRACK MIX channels + INPUT MIX channels + Effect return 1–4) of the mixer section.

③ AUX SEND 1–4 jacks

These jacks output a signal sent from each channel of the mixer section (TRACK MIX channels + INPUT MIX channels) to AUX send 1–4.

④ DIGITAL IN/OUT jacks

These coaxial jacks transmit and receive audio signals to and from an external digital device, such as a DAT recorder or an MD recorder.

⑤ MIDI IN connector

This connector receives sync signals and control signals from an external MIDI device, such as a MIDI sequencer.

⑥ MIDI OUT/THRU connector

This connector transmits sync signals and control signals to an external device, such as a MIDI sequencer. If you change the setting for this connector on the DPS16, this connector functions as a MIDI THRU connector that outputs information received at the MIDI IN connector as it is.

⑦ SCSI connector

This connector is used to connect an external hard disk, MO drive, or CD-R drive.

⑧ FOOT SW. (foot switch) jack

This jack is used to connect a foot switch to control the Punch In/Out operation and playback/stop operation with your foot.

⑨ POWER switch

This switch turns on/off the power to the DPS16.

⑩ Power connector

Connect the included power cable here.

Internal IDE hard disk

- The DPS16 has an internal hard disk (optional) that conforms to the IDE standards. You need to format this hard disk before you can use the DPS16. (See page 22 for more information on how to format the disk.)
- Before you turn off the power to the DPS16, make sure that the hard disk is not being accessed. If you turn off the power to the DPS16 while the hard disk is being accessed, the hard disk may be damaged and data on the disk may be lost. Be sure to turn off the power before you move the DPS16 to another location. The Disk Busy field on the Main screen enables you to check to see whether or not the disk is accessed. (Refer to page 14 for more information on the Main screen.)
- If the hard disk is damaged for some reason, data recorded on the disk will be permanently lost. Make it a rule to back up important data to an external hard disk or MO disk. (See page 118 for more information on how to back up data.)

About external SCSI devices

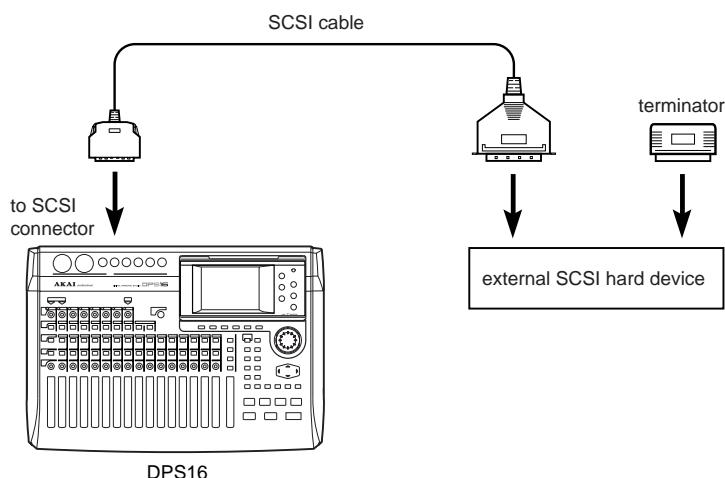
The rear panel of the DPS16 is equipped with a high-pitch 50-pin SCSI connector (SCSI-2 standard), which you can connect to an external hard disk or MO drive to back up, record, or play back data.

►NOTES :

- Some models of external SCSI devices may not be compatible with the DPS16. Also, you may not be able to record or play back, or you may have only a limited number of tracks available for simultaneous multitrack recording and playback.*
- Consult AKAI technical support for more information on the manufacturers and models of external SCSI devices that are compatible with the DPS16.*

■ Connecting a single SCSI device

Use a SCSI cable to connect the DPS16 and one SCSI device.



<Example of connecting a single SCSI device to the DPS16>

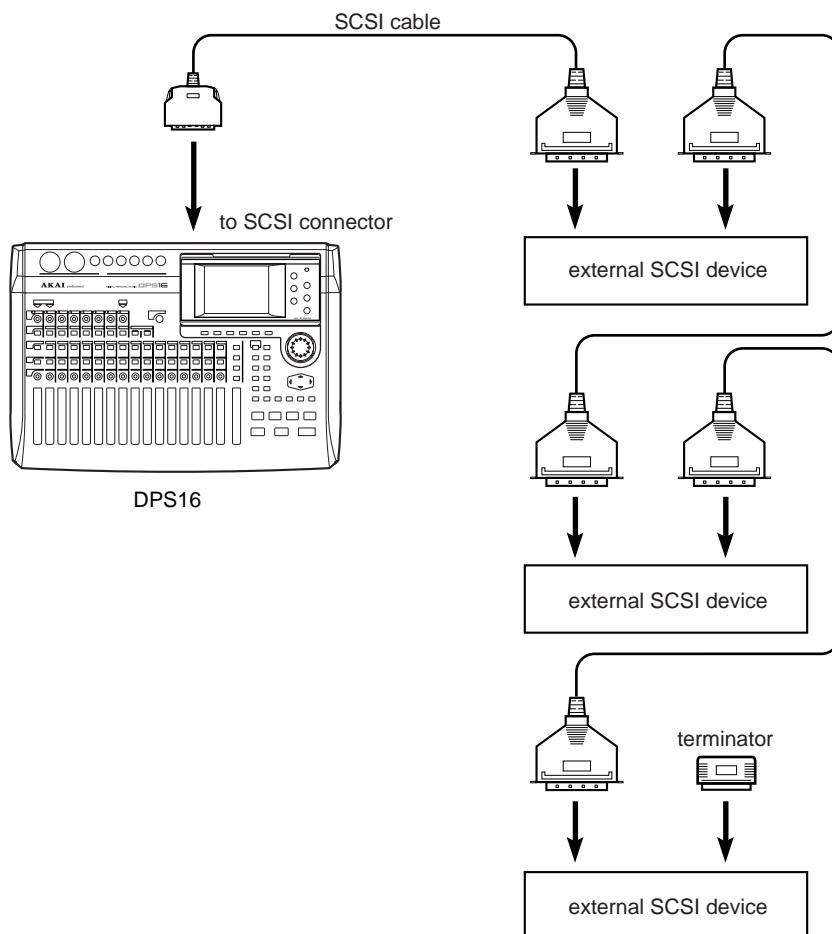
Install a terminator on the SCSI device. If the SCSI device has a built-in active terminator, turn it on. (Refer to the instruction manual that came with the SCSI device for more information on how to turn on the active terminator.) Set the SCSI ID number of the external SCSI device to any number other than 6 or 7.

❖TIPS :

- A terminator is a device that terminates the end of the SCSI connection. Usually, you install the terminator on the SCSI device on the SCSI connector that is not connected to the SCSI cable. Some SCSI devices may have a built-in active terminator that performs termination electrically. In this case, turn the terminator on or off using the dedicated switch.*
- SCSI devices recognize and identify each other using an identification number between 0–7 called the SCSI ID. The factory SCSI ID setting of the DPS16 is 6 (changeable), and ID 7 is not allowed. You need to use other numbers as SCSI IDs for other connected SCSI devices.*

■ Connecting multiple SCSI devices

Use a daisy chain connection to connect multiple SCSI devices as shown below:



<Connecting multiple SCSI devices>

Install a terminator on the last SCSI device in the daisy chain. (If the SCSI device has a built-in active terminator, turn it on.) Set the SCSI IDs of all external SCSI device numbers other than 6 or 7.

⚠ CAUTION : Turn off the power to all devices before performing SCSI connections.

➤NOTE :

- Use a short, high-quality SCSI cable, if possible. Using a cable that is too long or of low quality may cause an error.
- You need to format the disk before you can use an external hard disk or MO drive connected to the DPS16. (Refer to pages 22 for more information on how to format the disk.)
- To record and play back data to the connected hard disk or MO drive, you need to specify the drive as the current drive (currently selected drive). (Refer to page 127 for more information on how to specify the current drive.)

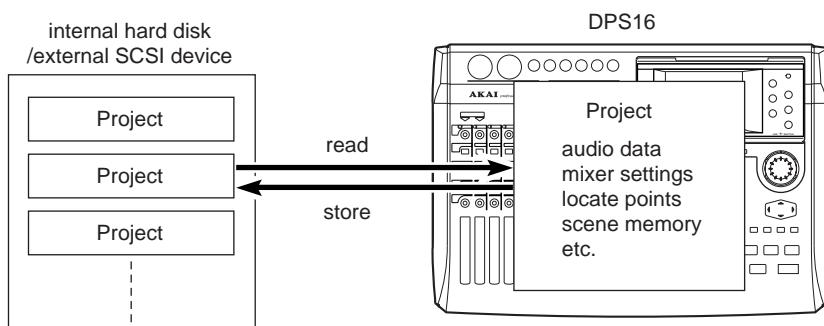
Terminology and functions unique to DPS16

The DPS16 is a product that integrates a hard disk recorder, digital mixer, and a digital effects processor. From recording to output at the MASTER OUT jack, all data is processed in the digital domain. Therefore, its concept and the way in which it works is slightly different than conventional MTRs or analog mixers. This section introduces that concept and terminology unique to the DPS16.

About Project

The DPS16 manages songs by treating them as “Projects”. A Project contains audio data, mixer settings, locate points (position information in a song), and scene memory (mix parameter settings).

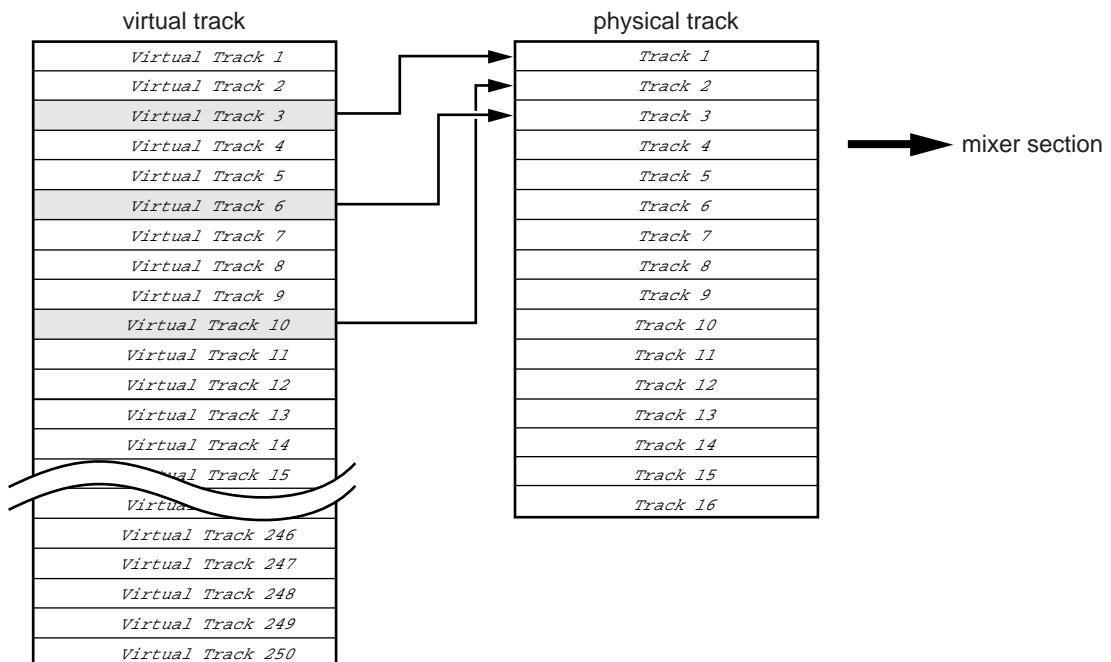
The internal hard disk can store multiple Projects. However, the DPS16 can handle only one Project (current Project) at a time. Load another Project from the disk or create a new Project, if necessary.



Physical tracks and virtual tracks

The DPS16 has 16 physical tracks and 250 virtual tracks.

A “physical track” is a track that is used to record, play back, and edit in the usual way. A “virtual track” is used to store recorded audio data. You cannot edit or play back virtual tracks directly. However, you can still record, play back, and edit them by assigning them to physical tracks.



<ex. The example above shows virtual tracks 3, 10, and 6 assigned to physical tracks 1, 2, and 3, respectively.>

For example, you can switch virtual tracks that are assigned to recording tracks (physical tracks) to record multiple takes of the main vocal performance. In this way, you can later select the best take for mixdown. You can also store data in a virtual track to perform ping-pong recording onto the data repeatedly until you are satisfied. Virtual tracks have various applications, and you can use the DPS16 without being limited to sixteen tracks.

TIP : You can also name virtual tracks.

Sampling frequency and bit resolution

The DPS16 records data onto the disk by digitizing (sampling) audio signals. “Sampling frequency” is the number of samples of the audio signal taken per second, and “bit resolution” indicates how precisely the audio signal is measured.

On the DPS16, you can specify a sampling frequency (32, 44.1, 48, or 96kHz) and a bit resolution (16-bit or 24-bit) for each Project. Depending on these settings, the number of tracks available for simultaneous recording and playback varies. (See page 24 for more information on how to specify the sampling frequency and bit resolution.)

The number of tracks available for simultaneous recording:

	32kHz	44.1kHz	48kHz	96kHz
24-bit	10 track	10 track	10 track	6 track
16-bit	10 track	10 track	10 track	8 track

The number of tracks available for simultaneous playback:

	32kHz	44.1kHz	48kHz	96kHz
24-bit	12 track	12 track	12 track	6 track
16-bit	16 track	16 track	16 track	8 track

►NOTE :

- The number of available tracks varies depending on the specification and performance of the drive.
- The number of AUX SENDs you can use simultaneously varies depending on the sampling rate setting. The number of effects you can use simultaneously is also affected in the same way. If the sampling rate is 32kHz, 44.1kHz, or 48kHz, you can use up to four AUX SENDs (and effects). If the sampling rate is 96kHz, you can use up to two AUX SENDS (and effects).
- The Projects' sampling frequency setting also affects the number of the EQs you can use simultaneously. If the sampling frequency is set to 32kHz, 44.1kHz, or 48kHz, you can use the EQs on up to 16 channels. If the frequency is set to 96kHz, you can use the EQs on up to 6 channels.
- You can change the sampling frequency later. However, the recorded sound will be played at a different pitch.
- For more information on the Project's sampling rate setting, see page 24, 106.
- You cannot change the bit resolution setting later. Carefully set the bit resolution when you create a new Project.
- If you wish to master your Projects to a CD-R/RW later, set the frequency and resolution of the new Projects to 44.1kHz and 16-bit respectively.

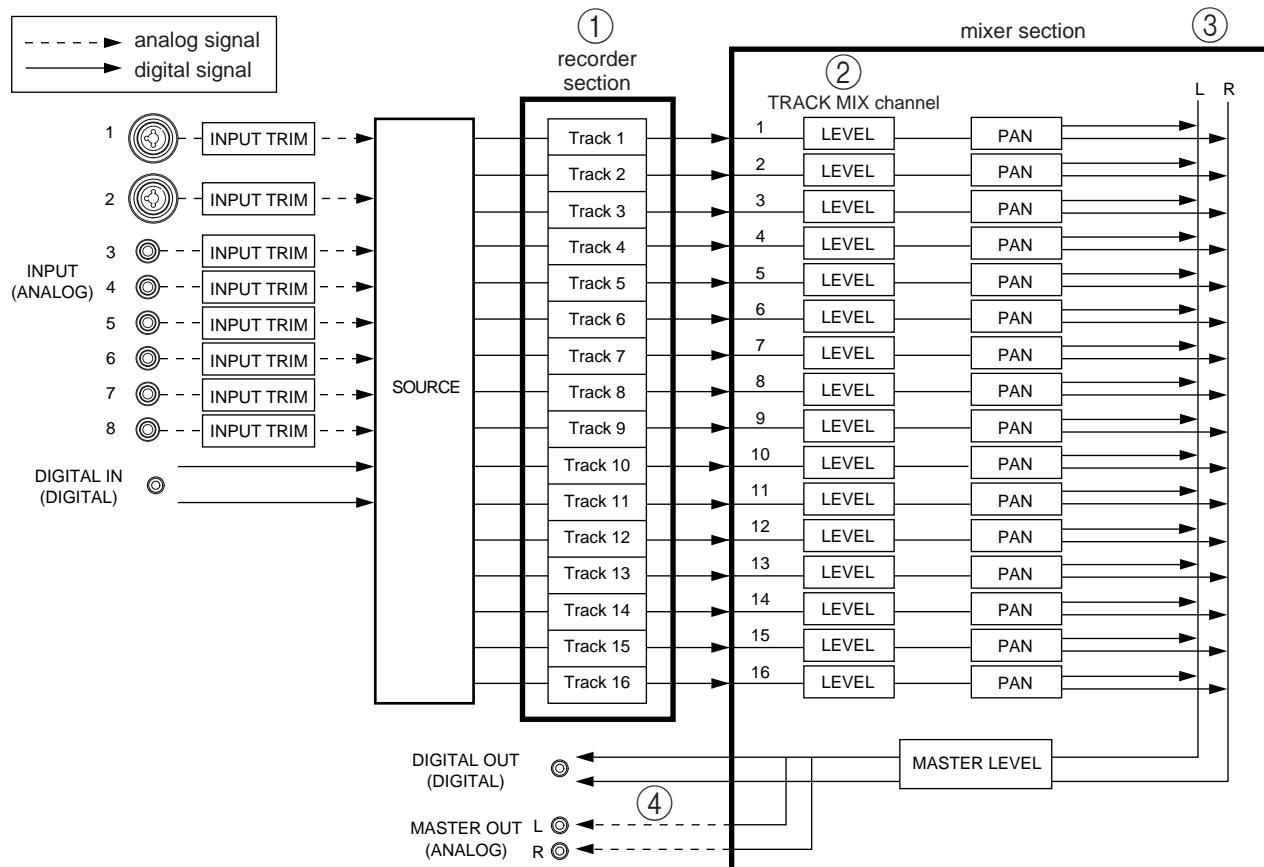
TRACK MIX channels and INPUT MIX channels

The DPS16's mixer section offers ten channels (called "INPUT MIX channels") that enable you to control input signals that come directly from INPUT jacks 1–8 and the DIGITAL IN jack, as well as sixteen channels (called "TRACK MIX channels") for which you can control track playback signals from the recorder section.

Both channels are equipped with the same mix parameters, such as EQ, AUX send 1–4, Pan, and level. However, you can also use the faders and knobs on the top panel to control the level and pan settings directly for the TRACK MIX channels.

Normally, you can record and mix down audio data using only the TRACK MIX channels. But, the INPUT MIX channels are useful when you wish to overdub external sound sources while playing back sixteen tracks in the recorder section.

The following diagram shows a basic signal flow during recording or mixdown using only the TRACK MIX channels.

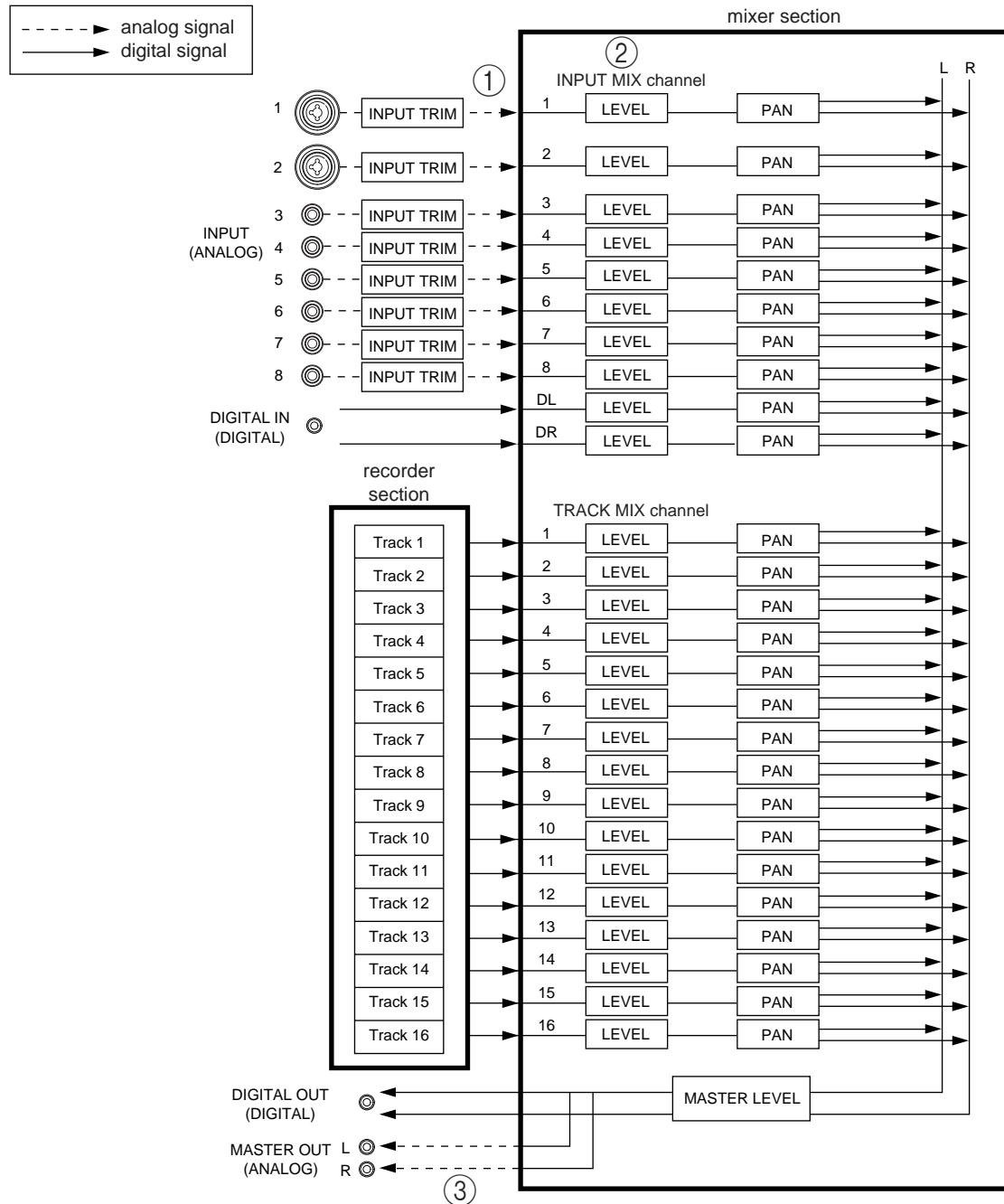


<A typical signal flow when only TRACK MIX channels are used>

- ① Signals input from the INPUT jacks 1–8 or DIGITAL IN jack are routed to the source section and assigned to each physical track in the recorder section. (Track assignment is performed in Quick Patch mode. See page 54 for more information.)
- ② Physical tracks 1–16 of the recorder section are directly routed to TRACK MIX channels 1–16 of the mixer section. Usually, input signals are sent from record-ready tracks to the mixer section, and the recorder playback signals are sent from other tracks to the mixer section.
- ③ You can set the level and pan of the signals sent to the TRACK MIX channels, using the faders and the PAN controls on the top panel before mixing down to a stereo signal. You can also adjust the mix-related parameters (not shown in the diagram), such as channel on/off, EQ, and AUX send 1–4. (These settings are available in Mixer mode. Refer to page 64 for more information.)

- ④ The master level of the stereo mix signal is adjusted by the master fader on the top panel. This signal is output from the MASTER OUT jacks (analog) and the DIGITAL OUT jack (digital).

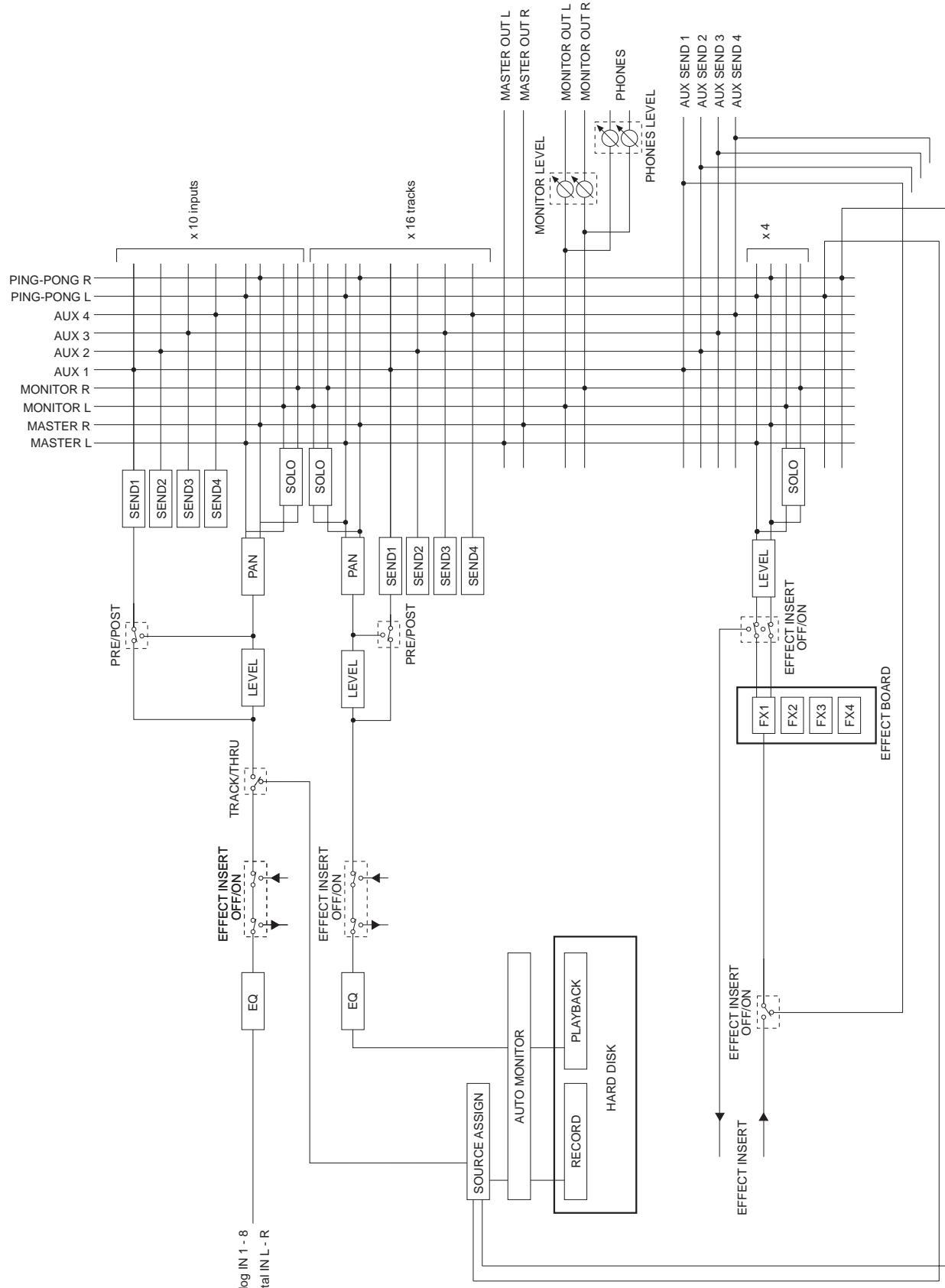
You can also send the input signals at the INPUT jacks directly to the mixer section, instead of sending them to the tracks. The following diagram shows a typical signal flow when the INPUT MIX channels are used.



<A typical signal flow when both TRACK MIX channels and INPUT MIX channels are used>

- ① You can route each input signal to the mixer section (INPUT MIX channels) or to the recorder section (TRACK MIX channels) individually. In this example, all input signals are sent to the INPUT MIX channels. (This routing is done in Quick Patch mode. Refer to page 54 for more information.)
- ② You can also set the mix-related parameters, such as the level, pan, channel on/off, EQ, and AUX send 1–4, for the signals sent to the INPUT MIX channels, similar to the signals sent to the TRACK MIX channels. You cannot control the level and pan of the INPUT MIX channels from the top panel.

- ③ The stereo mix signals of the INPUT MIX channels and TRACK MIX channels are adjusted for the master level by the master fader on the top panel, then output from the MASTER OUT jacks (analog) and the DIGITAL OUT jack (digital).



Scene memory

The DPS16 can store a set of mix parameter settings as a scene, and recall the scene later. A scene is stored as part of the Project on the disk. You can store up to 8 scenes in one Project. For example, you may store multiple scenes with different balance and EQ settings for mixdown, and audition and compare different mixes.

The following main parameters are stored in a scene.

- **Channel on/off**
- **Channel level**
- **Channel panning**
- **Channel AUX send**
- **Channel EQ setting**
- **Channel on/off for the ping-pong bus**
- **Master level (Master bus output level)**
- **AUX send master level**
- **Effect settings**

The DPS16's user interface

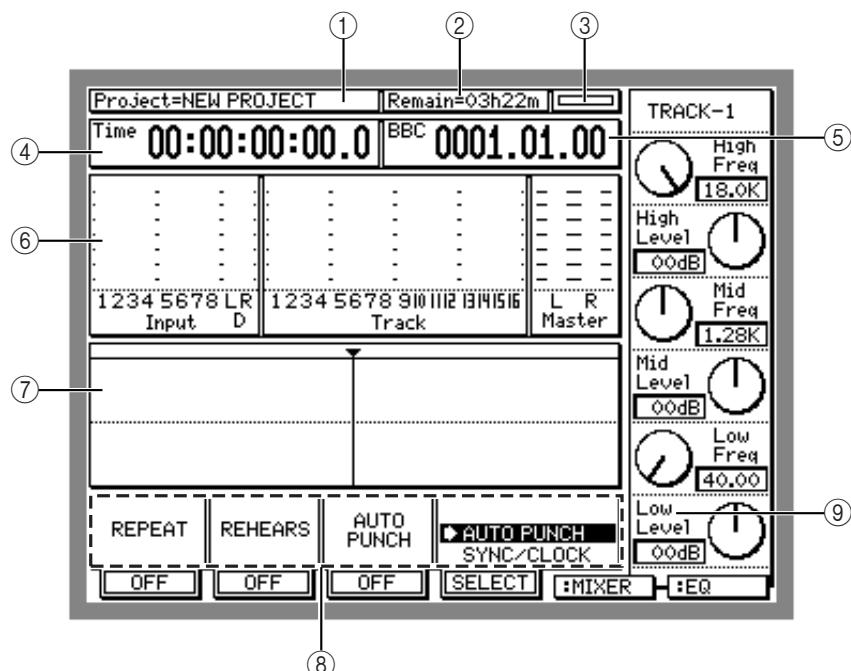
This section explains basic operation of the DPS16, such as using the display and changing the values.

Using the display

Various information required for operating the DPS16, such as the current position, mix parameter settings, etc., appears on the display. The information varies depending on which key you operate.

■ Screen

A display that appears when you press a mode key is called a “screen”. For example, the following display is a Main screen that is accessed when you turn on the power to the DPS16 or when you press the [MAIN SCREEN] key. You will use this screen for recording and playback.



The Main screen shows the following information:

① **Project**

Indicates the name of the Project you are currently working on (current Project).

② **Remain**

Indicates the remaining time available for recording on the disk in hours/minutes.

③ **Disk busy**

This meter indicates that the disk is being accessed. The more the meter moves, the more frequently the disk is being accessed.

④ **Time counter**

Indicates the current transport position. You can enter a value into the time counter to move to a desired position.

⑤ **BBC counter**

Indicates the current transport position in Bar/Beat/Clock steps (one clock=1/24 of a quarter note). You can enter a value into the BBC counter to move to a desired position.

⑥ **Level meter**

Indicates the input levels at the INPUT jacks and DIGITAL IN jack, the output levels of physical tracks 1–16, or the master level (Master bus output level).

⑦ **Track view**

Indicates whether audio data exists in the physical tracks. It also indicates the length of the data in a bar graph.

⑧ **Q-Link Function Select**

This section enables you to use the functions of the [F1] – [F4] keys to make parameter settings quickly. Use the [F4] (SELECT) key and the [JOG] wheel to select a function, and use the [F1] – [F3] keys to turn the parameters on or off and change the values. (See page 98 for more information on how to use the Q-Link Function Select.)

⑨ **QLMC (Q-Link Mixer Control)**

This area indicates the parameters controlled by the six Q-Link knobs ([C1] – [C6] knobs) on the right side of the display. The parameters shown in this section differ depending on the current mode.

Changing the settings and values

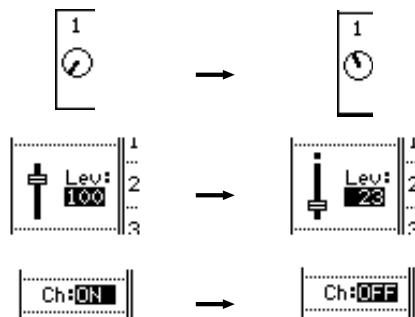
You can either use the [JOG] wheel or enter a numeric value directly to change the settings or time values of the fields and the time counter.

■ Using the [JOG] wheel to change the settings

Use the [JOG] wheel to change the time value of the time counter or the field settings.

1. Use the [CURSOR] key to move the cursor to the desired counter or field.

2. Turn the [JOG] wheel to change the setting.



TIP : Use the [SHUTTLE] knob to select a digit to edit when the time counter or a time field is selected. First rotate the [SHUTTLE] knob to select a digit to change, then use the [JOG] wheel to change the value.

00:00:00:00.0 → 00:00:00:00.0 → 00:00:00:00.0 → 00:00:00:00.0

■ Entering a numeric value directly

You can use the keys on the top panel to directly enter a value for the time counter, BBC counter, and time or numeric field. Follow the steps below:

1. Use the [CURSOR] key to move the cursor to the desired counter or time field.

2. Press the [NUMBER/NAME] key.

The [NUMBER/NAME] key's LED flashes and the keys on the top panel function as numeric keys.

3. Use the [RECORD SELECT] 1–10 keys to enter a desired number (1–9, 0).

The [RECORD SELECT] 1–10 keys function as numeric keys 1–9, 0.

For example, if you wish to enter 1 hour, 25 minutes, and 43 seconds for the time counter or a time field, press the [RECORD SELECT] 1–10 keys in the following order:

...:...:...:.1 → ...:...:...:1.2 → ...:...:...:12.5 → ...:...:1:25.4
→ ...:...:12:54.3 → 1:25:43:00.0

3. Press the [NUMBER/NAME] key to confirm.

Entering characters

You can either select a character using the [JOG] wheel or type a character directly to enter characters in the character fields (for naming virtual tracks or Projects).

■ Using the [JOG] wheel to enter characters

1. Use the [CURSOR] key to move the cursor to a character field.

Name:(no name)

2. Press the [NUMBER/NAME] key.

The [NUMBER/NAME] key's LED flashes and an underline appears under the first character in the character field. This underline indicates that you can enter a character.

Name:(no name)

3. Rotate the [JOG] wheel to select a character to enter.

The following numbers, letters, and symbols can be selected by the [JOG] wheel.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	[¥]	^	_	~
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{	¡	}	-	!	
"	#	\$	%	&	'	(	)	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?	@

Name:(no name)

4. Use the [CURSOR] key or the [SHUTTLE] knob to move the underline to the second character position.

While the [NUMBER/NAME] key's LED flashes, you can move the underline back and forth using the [CURSOR] key or the [SHUTTLE] knob.

Name:(no name)

5. Repeat Steps 3 and 4 to complete naming.

If you enter a wrong character, use the [CURSOR] key or the [SHUTTLE] knob to move the underline to the character you wish to correct, and enter a correct character.

Name:MY SONG _

6. Press the [NUMBER/NAME] key again.

The [NUMBER/NAME] key's LED turns off, and the entered characters are confirmed.

■ Entering characters directly

You can enter characters directly into a character field by using the keys on the top panel.

1. Use the [CURSOR] key to move the cursor to a character field.

Name:(no name)

2. Press the [NUMBER/NAME] key.

The [NUMBER/NAME] key's LED flashes, and the keys on the top panel function as number/letter keys. Letters, numbers, and symbols are printed below the keys. The following characters can be entered.

1	2	3	4	5	6	7	8	9	0	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
W	X	Y	Z	&	#	+	-	.	(Space)																						

3. Press the key that corresponds to the letter, number, or symbol you wish to enter.

The character that corresponds to the pressed key is entered and the underline moves to the right.

Name:Mno name)

4. Repeat Step 3 repeatedly to complete naming.

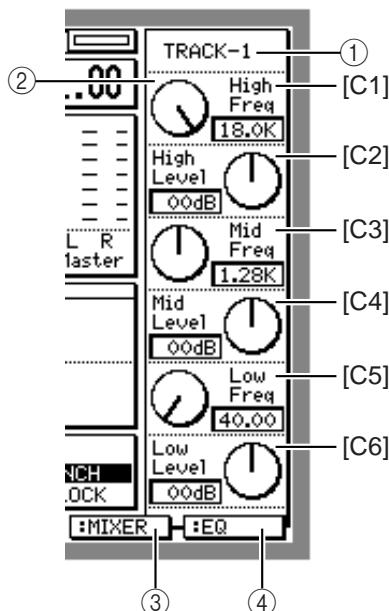
5. Press the [NUMBER/NAME] key again.

The [NUMBER/NAME] key's LED turns off, and the entered characters are confirmed.

QLMC (Q-Link Mixer Control)

When the Main screen or a Mixer mode screen is displayed, the QLMC (Q-Link Mixer Control) section appears on the right side of the display. QLMC is a function used to directly control the DPS16's mix parameters and effect parameters.

Six knobs ([C1] – [C6]) on the right side of the display correspond to the parameters shown on the display and are used to adjust the parameters during recording or playback.



- ① Indicates the channel currently selected for editing. To select a channel, use the [TRACK SELECT] keys for TRACK MIX channels, the [INPUT SELECT] keys for INPUT MIX channels, and the [MASTER] key for the master section.
- ② Indicates the names of parameters and settings controlled by six Q-Link knobs.
- ③ **QLMC mode selection ([F5] key)**
The [F5] key enables you to select a QLMC mode from among “MIXER” (controlling mixer parameter) and “EFFECT” (controlling effect parameters).
- ④ **Parameter selection ([F6] key)**
The [F6] key enables you to select a parameter that appears in area (②). Parameters you can select vary depending on the current QLMC mode.

✓ TIP: See page 75 for more information on how to control mix parameters using the QLMC section, and page 147 for more information on how to control effect parameters using the QLMC section.

■ When the QLMC mode is set to MIXER:

Pressing the [F6] key repeatedly toggles the following two options:

- EQ Enables you to adjust the center frequency (Freq) and the boost/cut amount (Level) of the 3-band EQ (High, Mid, Low).
- SEND Enables you to adjust the Send (AUX send) 1-4, Pan, and Level.

■ When the QLMC mode is set to EFFECT:

Pressing the [F6] key repeatedly toggles the four options in the following order:

- FX1 Parameters of the effect selected for FX1
- FX2 Parameters of the effect selected for FX2
- FX3 Parameters of the effect selected for FX3
- FX4 Parameters of the effect selected for FX4

Follow the steps below to operate the QLMC section.

1. Press the [F5] key to select MIXER or EFFECT as the QLMC mode.

2. Press the [F6] key to select a mix parameter you wish to control.

If you have selected “MIXER” in Step 1, you can select EQ or SEND here. If you have selected “EFFECT” in Step 1, you can select FX1 – FX4.

3. If you have selected “MIXER” in Step 1, use the [INPUT SELECT] keys, [TRACK SELECT] keys, and [MASTER] key to select the target channel.

The first line of the QLMC section on the screen indicates the selected channel number.

4. Operate the Q-Link knobs ([C1] – [C6] knobs).

The corresponding parameter’s value changes.

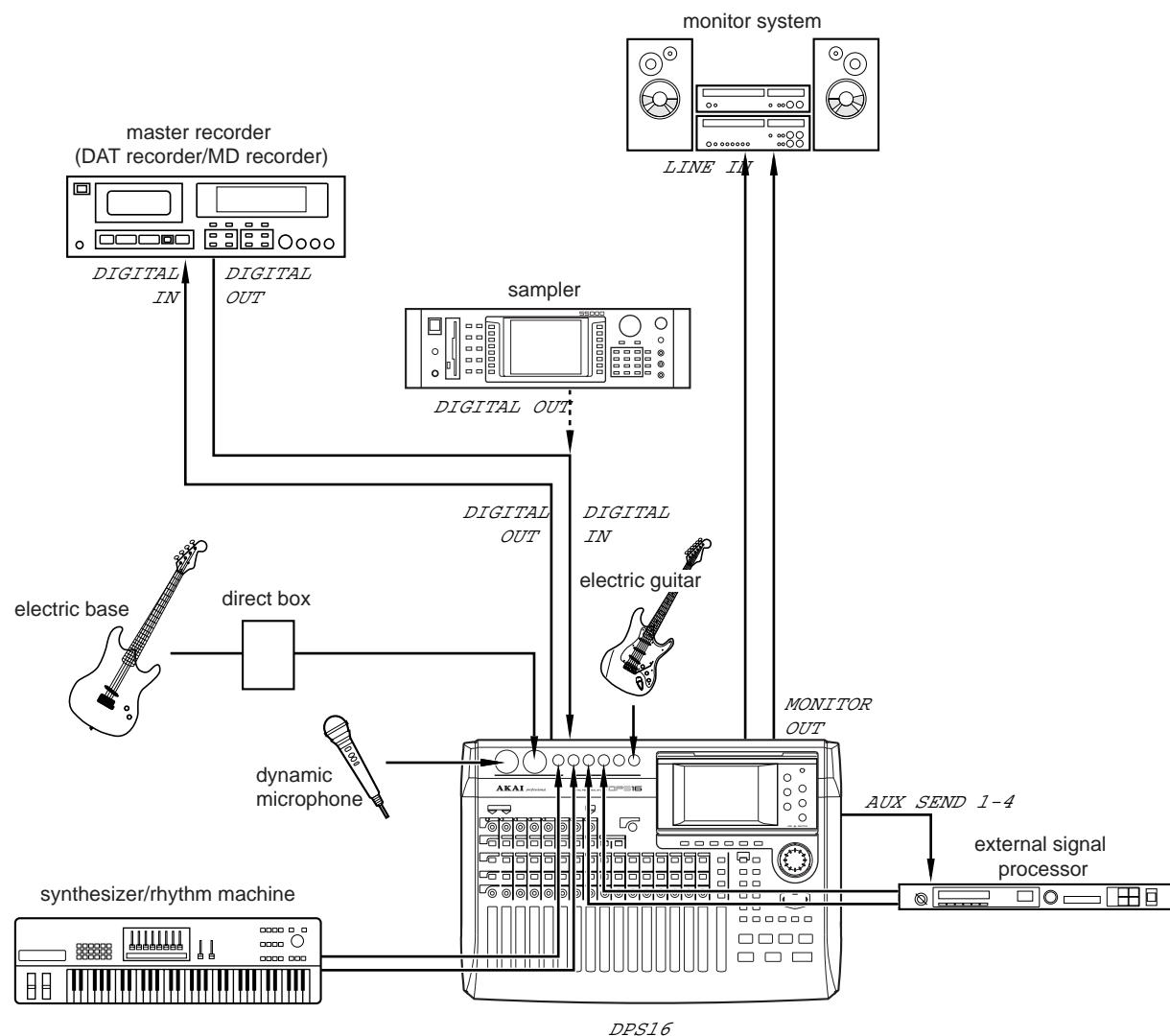
See page 75 for more information on how to control mix parameters using the QLMC section, and page 147 for more information on how to control effect parameters using the QLMC section.

Chapter 2: Recording on the DPS16

This chapter describes the basic operations of the DPS16, including recording preparation, recording the first part, overdubbing, and mixing down to a master recorder.

Connections

The diagram below is an example of the basic connections for recording on the DPS16.



⚠ CAUTION : Make sure that you turn off the power to all equipment before making connections.

■ Connecting sound sources

- You can connect line-level instruments, such as a synthesizer or a rhythm machine, and dynamic microphones directly to INPUT jacks 1–8.
- INPUT jacks 1–2 accept either a standard 1/4" TRS phone plug or a balanced XLR-type plug. Use these jacks to connect a condenser microphone or a direct box that requires phantom power, and turn on the [PHANTOM POWER] switch on the top panel.
Before turning the [PHANTOM POWER] switch on or off, make sure that all channel faders are lowered or the power to the DPS16 is turned off. Otherwise, loud click noise may occur.
- Connect instruments with a high output impedance, such as an electric guitar to INPUT 8 and set the [GUITAR/NORMAL] switch to “GUITAR”.

■ Connecting a monitor system

Connect a monitor system, such as audio equipment, to the MONITOR OUT jacks. Usually, these jacks output the same signals that are output from the MASTER OUT jacks. However, if the Solo function is enabled, only soloed signals will be output. In this way, you can monitor certain channels without affecting the output signals at the MASTER OUT jacks.

■ Connecting a master recorder

If you use a master recorder that has digital input jacks, such as a DAT recorder or an MD recorder, connect the DIGITAL OUT jack of the DPS16 to the digital input jack of the master recorder.

☞ TIP : The DIGITAL OUT jack of the DPS16 is a coaxial type. If the digital I/O jacks of the master recorder are optical, you will need an optical/coaxial converter.

Similarly, if you use an analog recorder as the master recorder, connect the MASTER OUT jacks of the DPS16 to the input jacks of the master recorder.

■ Connecting a device that has digital output jacks

To input signals from a device that has digital output jacks, such as a sampler, into the DPS16, connect the digital output jacks of the external device to the DIGITAL IN jack of the DPS16.

☞ NOTE : To input digital signals from a connected external device to the DPS16 via the DIGITAL IN jack, set the DPS16 so that it will follow the external clock, not the internally generated clock. (See page 100.)

■ Connecting an external effect unit

To use external effects, such as reverb and delay, connect the AUX SEND 1–4 jacks of the DPS16 to the input jacks of the external effect unit, and the output jacks of the effect units to the input jacks of the DPS16.

☞ NOTE : AUX sends 1–4 of the DPS16 also function as the effect sends to the internal effect (FX1–FX4). Therefore, to use any of AUX SEND jacks 1–4 to send out signals to the external effect unit, disable the internal effects for the corresponding effect send. (See page 66.)
For the channel that receives return signal from the external effect unit, do not raise the level of AUX send (that will send the signal to the effects). Otherwise, the signal will loop and the speaker system may be damaged.

Preparing to record

This section explains the necessary preparations for recording.

Turning on the power to the DPS16

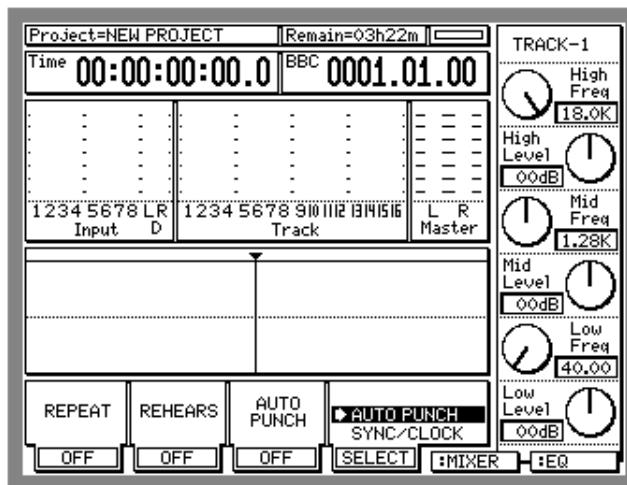
1. Turn on the power to the peripheral devices, excluding the DPS16 and the monitor system.

The sequence for turning on the power to each device is: peripheral devices (such as tone generator, external SCSI device) → DPS16 → monitor system.

Reverse this order when you turn off the power.

2. Turn on the power to the DPS16.

When the power is turned on, the DPS16 performs the internal memory test and initializes the hard disk settings. When the test and initialization are completed successfully, the following Main screen appears on the display.



3. Turn on the power to the monitor system.

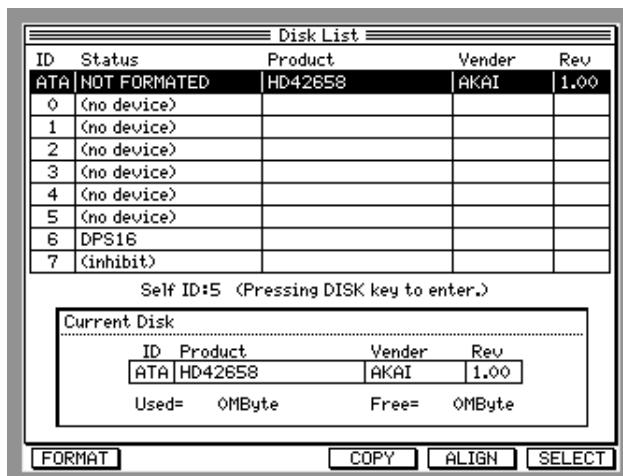
►NOTE : If the hard disk you are using has not been formatted on the DPS16, the DPS16 will display the startup screen but not the Main screen when you turn on the power to the unit. In this case, you must format the disk. Press the [F6](SKIP) key to display the Main screen while the startup screen is displayed, then format the disk.

Formatting a hard disk

Before you use the DPS16 or a connected removable drive, such as an external hard disk or MO disk for the first time, format the disk and media following the steps below. (Ignore this procedure if you use a pre-formatted disk.)

1. Press the [DISK] key.

The DPS16 enters Disk mode and the display changes as follows:



This Disk List screen indicates the status of the internal hard disk and the external drive connected to the SCSI bus. In this example, the ATA field indicates the internal hard disk and the SCSI ID 6 field indicates the DPS16. SCSI ID 7 is not allowed.

TIP : “NOW SELECTED” appears in the Status field of the current drive. “NOT FORMATTED” appears in the field of non-formatted drives.

NOTE : The content of the Disk List screen varies depending on the internal hard disk and the connected SCSI device.

2. Use the [CURSOR] key to move the cursor to the field of the hard disk or removable drive to be formatted.

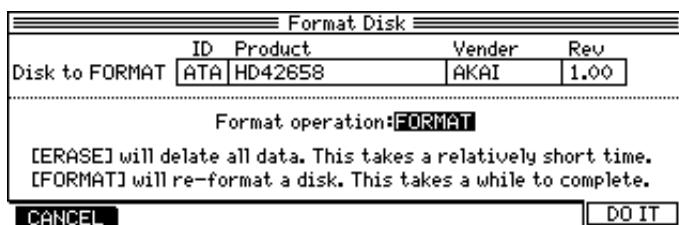
To format the internal hard disk, select ATA.

To format the external drive, select the SCSI ID number of the drive.

Four functions are indicated on the bottom of the Disk List screen. You can access these functions using the [F1], [F4], [F5], and [F6] keys.

3. Press the [F1] (FORMAT) key.

The Format Disk window appears.



In this way, while any screen other than the Main screen is shown, the [F1] – [F6] function keys enable you to access the desired window or perform a certain function depending on the selected mode.

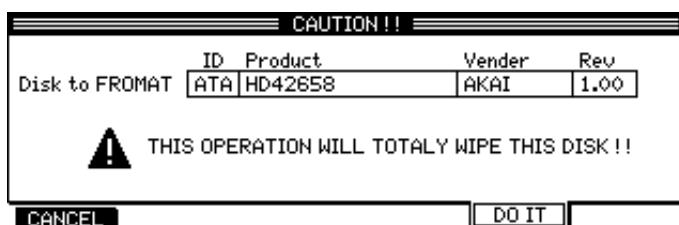
The example above shows “ATA” has been selected in step 2.

4. Turn the [JOG] wheel to set the Format operation field to “FORMAT”.

NOTE : Formatting a disk will erase all information on the disk. Before proceeding, make sure that you have selected a correct ID number for the disk in this window.

5. Press the [F6] (DO IT) key.

The CAUTION!! window appears, asking whether you want to format the disk.



NOTE : This is your last chance to cancel the format operation. Press the [F1] (CANCEL) key to abort the operation.

6. Press the [F5] (DO IT) key to execute the format operation.

The DPS16 starts formatting the specified drive. (Formatting may take a while.) When the format operation is complete, the Create New Project window appears.

Creating a new Project

You can create a new Project using the Create New Project window. This window appears when you press the [F5] (NEW) key after the disk is formatted or after you press the [PROJECT] key to place the DPS16 in Project mode.



① **New Project**

This field enables you to name a new Project.

② **Resolution**

This field enables you to set the bit resolution (16-bit or 24-bit) for recording/playing back the Project.

③ **Sampling rate**

This field enables you to set the sampling frequency (32kHz, 44.1kHz, 48kHz, or 96kHz) for recording/playing back the Project.

3. To name the Project, move the cursor to the New Project field and press the [NUMBER/NAME] key. (See page 17 for more information on how to enter characters.)

4. To set the bit resolution and the sampling rate, move the cursor to the corresponding field and turn the [JOG] wheel to select a value.

►NOTE : You can change the Project name and sampling frequency later. However, if you change the sampling frequency later, the pitch during playback may change and/or the number of available tracks may be limited. We recommend that you set these values before you start recording the first track. You cannot change the bit resolution later. Use extra caution when you create a new Project.

5. Press the [F6] (DO IT) key.

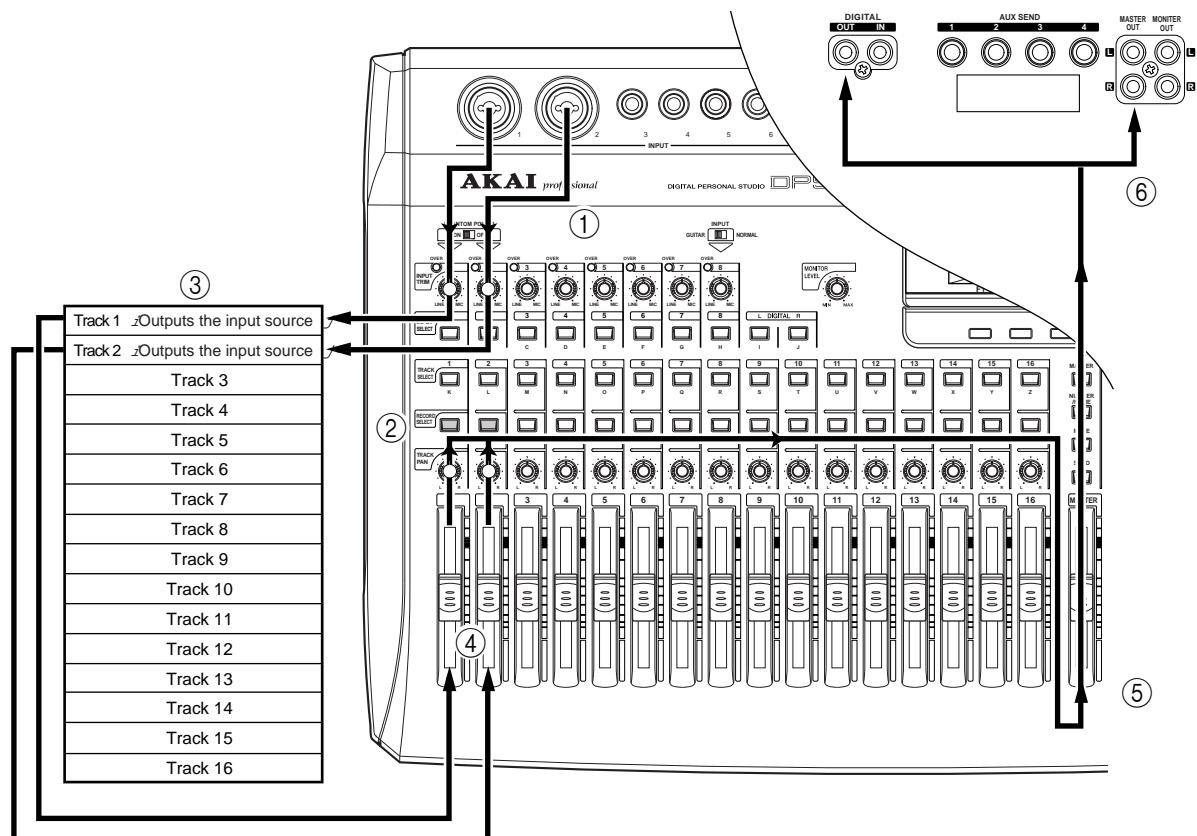
A new Project is created and the display returns to the MAIN screen.

Recording the first track

This section explains how to record the first track, using an example of recording a rhythm machine connected to INPUT jacks 1 and 2 onto tracks 1 and 2.

Signal flow during recording

The diagram below shows the signal flow for recording tracks 1 and 2.



- ① With the DPS16's default settings, signals input at INPUT jacks 1 and 2 are sent via the [INPUT TRIM] knobs to physical tracks 1 and 2 of the recorder section.
- ② Press [RECORD SELECT] keys 1 and 2 on the top panel to cause tracks 1 and 2 to enter record-ready status.
- ③ Output signals from tracks 1 and 2 are directed to TRACK MIX channels 1 and 2 of the mixer section. At this time, the input source signals (the signals input to the tracks selected by the [RECORD SELECT] keys) are output whether the transport section is stopped or recording.
- ④ You may adjust the level and pan setting of the TRACK MIX channels 1 and 2 signals using channel faders 1 and 2 and [TRACK PAN] knobs 1 and 2 on the top panel.
- ⑤ Signals that have passed through the channel faders and the [TRACK PAN] knobs are mixed into a stereo signal, then routed to the master section (Master bus L/R).
- ⑥ The signal adjusted by the [MASTER] fader for output level is output from the MASTER OUT jacks or the DIGITAL OUT jack.

Recording to the first track

1. Connect the output jacks of a rhythm machine to INPUT jacks 1 and 2.

INPUT jacks 1 and 2 accept either the XLR-type plug and 1/4" TRS phone plug. To connect a standard 1/4" phone plug to one of these jacks, insert the plug in the center of the jack.

2. Press [RECORD SELECT] keys 1 and 2.

When you turn on the [RECORD SELECT] keys (and their LEDs flash in red), the corresponding tracks enter record-ready mode. The type of signal output from each track varies depending on the status of the DPS16 and the status of the [RECORD SELECT] key for each track.

	Stop	Playback	Recording
Tracks that have their [RECORD SELECT] keys turned on	Input source	Track playback	Input source
Tracks that have their [RECORD SELECT] keys turned off	—	Track playback	Track playback

In this example, the input source signal (the currently input rhythm machine sound) is output from tracks 1 and 2 while the DPS16 is stopped or recording.

✓ TIPS :

- During playback, you can also monitor the input source through the tracks that have their [RECORD SELECT] keys turned on. Refer to page 103 for more information.
- With the DPS16's default setting, INPUT jacks 1–6 are internally routed to tracks 1–6 and 11–16, and INPUT jacks 7 and 8 are routed to tracks 7 and 8, although you can change the input assignment to each track. Refer to page 54 for more information.

3. Raise channel faders 1 and 2 and the master fader and pan the signals using [TRACK PAN] knobs 1 and 2.

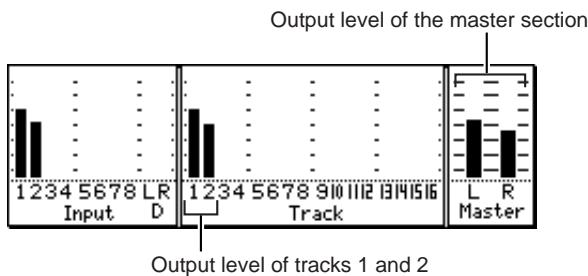
Raise channel faders 1 and 2 and the master fader to monitor the rhythm machine sound via the PHONES and MONITOR OUT jacks. Adjust the [MONITOR LEVEL] controls on the front panel and the volume of the monitor system to obtain the optimum sound level.

✓ TIP : The PHONES jack and the MONITOR OUT jacks output the same signals output from the MASTER OUT jacks. If the Solo function is enabled, these jacks output only the soloed channel sound.

4. Play the rhythm machine, and adjust [INPUT TRIM] knobs 1 and 2.

Set the [INPUT TRIM] knobs as high as possible so that the OVER indicator will not light up.

5. While checking the level meter in the Main screen, adjust channel faders 1 and 2 and the master fader.



Adjust channel faders 1 and 2 so that the level meter for Tracks 1 and 2 (output level of tracks 1 and 2) will not reach the maximum level when you play the rhythm machine. If the level meter of Master L / R (master section output level) reaches the maximum level, lower the master fader.

► NOTE : Remember that the signal you are monitoring now is a signal that passed through the recorder section, not a signal input at the INPUT jack. Operating channel faders 1 and 2 and the master fader will not affect the input level of a signal recorded to a track.

6. Press the [▶] button while holding down the [REC] button and start playing the rhythm machine.
Recording starts on the tracks in record-ready mode (tracks 1 and 2).

7. Press the [■] button when recording is complete.

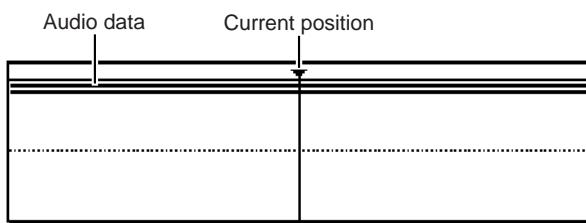
8. Press the [◀◀] button to check the recorded tracks.

Pressing the [◀◀] button will cause the time counter on the Main screen to return to zero (00:00:00:00.0).

◆ TIP : To locate a point, you can use various methods besides using the transport buttons. Refer to “Chapter 3: Transport/Locate Operation”.

9. Press the [▶] button to start playback from the top of the song.

When the DPS16 plays back data, you can monitor the recorder’s playback sound through any track, regardless of the on/off status of their [RECORD SELECT] keys. The Track View screen indicates a bar graph of audio data.



10. If you are satisfied with the recording on the tracks, press [RECORD SELECT] keys 1 and 2 to cancel the record-ready statuses of tracks 1 and 2.

The LED of the corresponding [RECORD SELECT] keys turns off.

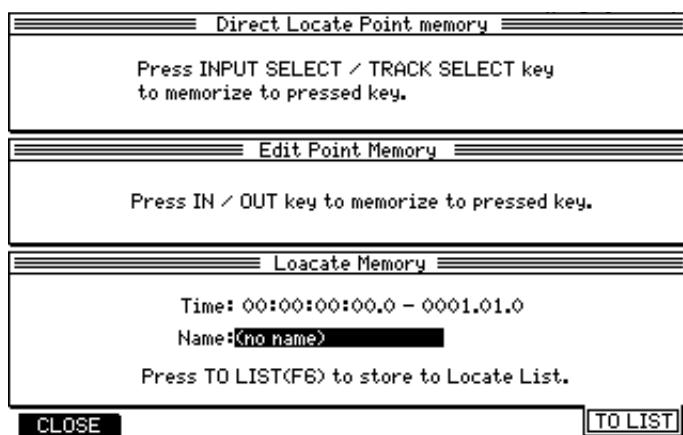
Using locate points

After you have finished recording the first track, you may want to store the points (time values) where a tune or tone changes, such as the end of the intro, the start of the chorus, bridge, etc., as locate points before you start recording the next track. If you store locate points, they are useful when you wish to start recording in the middle of the song or redo recording repeatedly, since a simple key operation will locate the desired point (this operation is called “locating”). The DPS16 offers “Direct locate” points that can be assigned to the keys on the top panel, as well as normal locate points that can be named and stored in a list. This section describes how to store the direct locate points.

1. Press the [▶] button to play back the song from the beginning.

2. Press the [MEMORY] key at the point you wish to store as a direct locate point.

The DPS16 displays the following three windows. The Time field in the Locate Memory window at the bottom indicates the time at which you pressed the [MEMORY] key.



✓ TIP : You can store a direct locate point while the DPS16 is stopped.

3. Press any one of the [INPUT SELECT] keys or [TRACK SELECT] keys.

The desired point (time value) is stored as a direct locate point in the selected key.

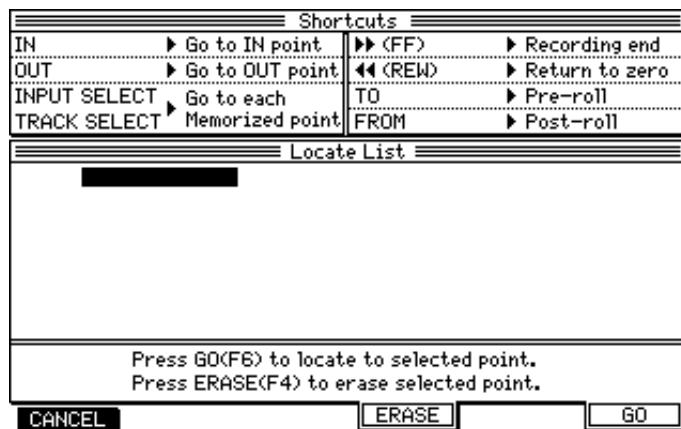
✓ TIP :

- You may store locate points in the [IN] key and [OUT] key, instead of the [INPUT SELECT] keys or [TRACK SELECT] keys. However, since the [IN] key and [OUT] key are also used to specify Punch In/Out points and edit regions, you may wish to first use the [INPUT SELECT] keys or [TRACK SELECT] keys to store the locate points.
- You can also name the locate points and store them in the Locate Point list. Refer to “Chapter 3: Transport/Locate Operation”.

4. Repeat steps 2–3 until all necessary direct locate points are stored.

5. To locate the stored direct locate point, press the [GO TO] key when the DPS16 is stopped.

The Shortcuts window and the Locate List window appear where you can perform the locate operation.



6. Press the [INPUT SELECT] key or [TRACK SELECT] key that is assigned to the direct locate point.

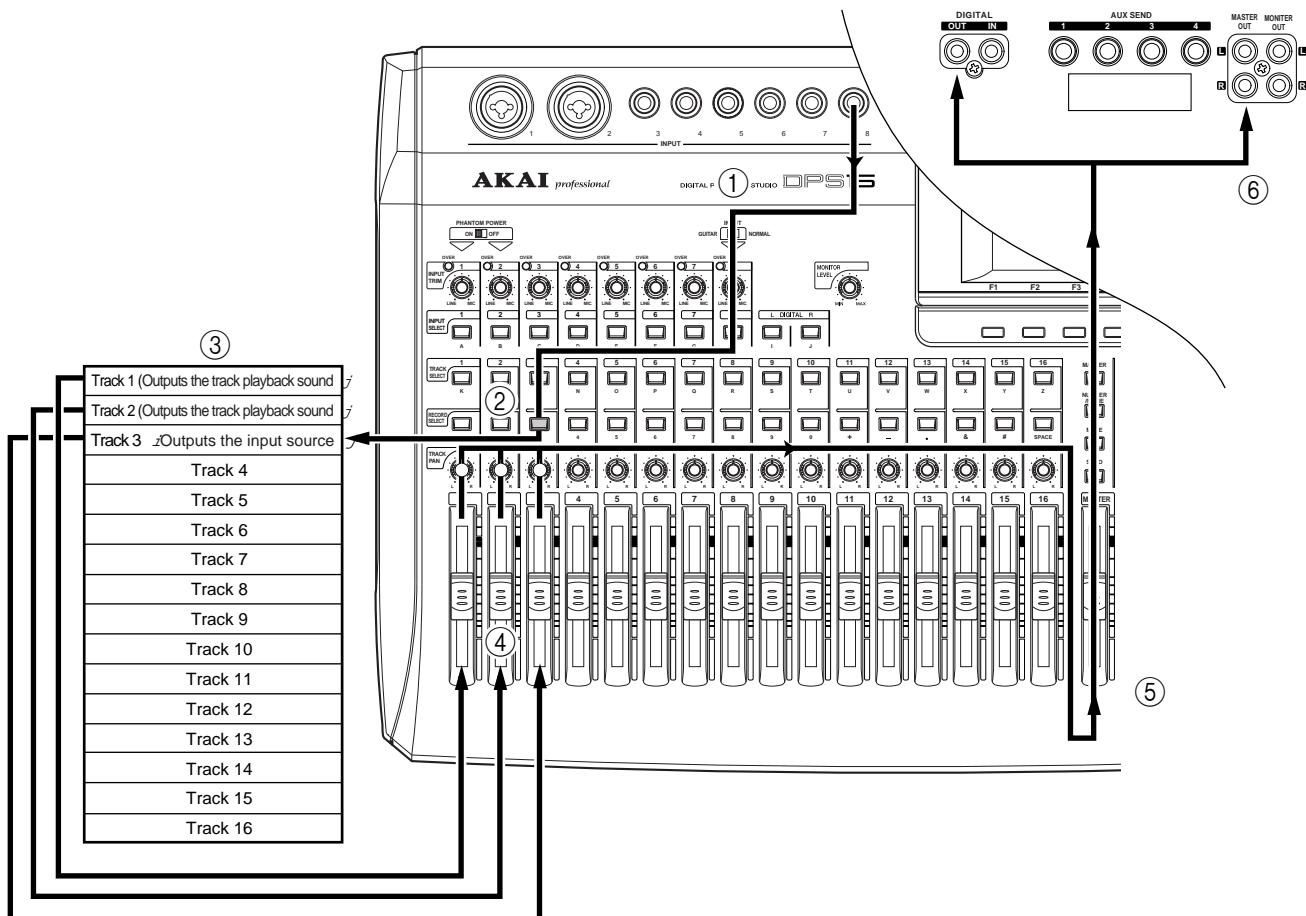
The DPS16 moves to the specified location, and the Shortcuts window and the Locate List window close.

Overdubbing

“Overdubbing” is a recording operation in which you record another part in a new track while monitoring the playback sound from tracks that have already been recorded. In this example, we overdub a bass guitar sound from INPUT jack 8 to track 3 while listening to the rhythm machine recorded on tracks 1 and 2.

Signal flow during overdubbing

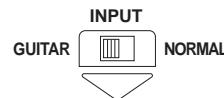
The diagram below shows a typical signal flow of overdubbing signals from INPUT 8 to track 3 while monitoring tracks 1 and 2.



- ① Change the internal routing so that the signal input at INPUT jack 8 is sent to physical track 3 of the recorder section.
- ② Press [RECORD SELECT] key 3 on the top panel to place track 3 in record-ready mode.
- ③ Output signals from tracks 1–3 are directed to TRACK MIX channels 1–3 of the mixer section.
- ④ You may adjust the level and pan settings of the TRACK MIX channel 1–3 signals using channel faders 1–3 and [TRACK PAN] knobs 1–3 on the top panel.
- ⑤ Signals that have passed through the channel faders and the [TRACK PAN] knobs are mixed into a stereo signal, then routed to the master section (Master bus L/R).
- ⑥ The signal adjusted by the master fader for the output level is output from the MASTER OUT jacks and the DIGITAL OUT jack.

Overdub operation

1. Connect the bass guitar to INPUT jack 8. Play the bass guitar and use [INPUT TRIM] knob 8 to adjust the signal level while checking the level meter, so that the OVER indicator will not light up even when the volume level reaches maximum. If the bass guitar is high-impedance, turn the [GUITAR/NORMAL] switch to GUITAR.

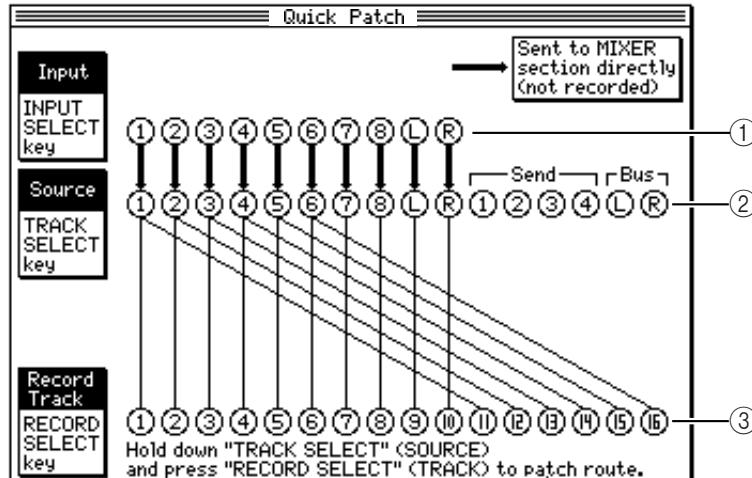


TIP : “High-impedance” instrument here means an electric guitar or bass that has passive-type pickups (a guitar or bass (without an internal pre-amp) that produces sound without using batteries).

INPUT jack 8 accepts high-impedance instruments. You can connect an electric guitar or bass directly to this input.

2. Press the [PATCH] key

The DPS16 enters Quick Patch mode in which you can change the internal routing, and displays the following Quick Patch screen.



① Input

This field indicates the destinations of the signals input from the INPUT jacks (1–8) and DIGITAL IN jack. A thick ascending line indicates a signal routed directly to the INPUT MIX channels in the mixer section. A thick descending line indicates a signal routed to the Source section (②) where you can select a recording source for the physical tracks. To record the input signal, a thick descending line should appear. Press the [INPUT SELECT] key repeatedly to toggle between ascending and descending lines.

② Source

This section displays the recording source for physical tracks 1–16. You can select a recording source using the [TRACK SELECT] keys. [TRACK SELECT] keys 1–8 correspond to input channels 1–8, [TRACK SELECT] keys 9 and 10 to digital input L and R, [TRACK SELECT] keys 11–14 to AUX SEND 1–4, and [TRACK SELECT] keys 15 and 16 to Ping-pong bus L and R.

③ Record Track

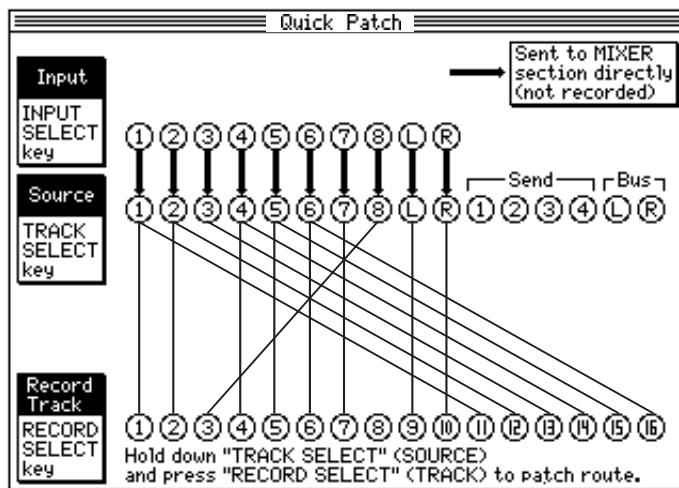
This field indicates physical tracks 1–16. You can select a recording source by connecting (patching) track numbers (1–16) with the recording sources in the Source section using patch cable (thin lines on the screen).

As you see in this figure, with the default setting, the input signal from INPUT jack 8 is sent to track 8. In this example, we change this to track 3.

3. If a thick ascending line from Input 8 appears, press [INPUT SELECT] key 8 to change to a thick descending line.

4. Press [RECORD SELECT] key 3 while pressing and holding down [INPUT SELECT] key 8.

This causes the patch cable between Source 3 and physical track 3 to be disconnected. Instead, the input signal from Source 8 is routed to physical track 3.



5. Press the [MAIN SCREEN] key.

The display returns to the Main screen.

6. Press the [RECORD SELECT] key of track 3.

Track 3 enters record-ready mode. At this time, you can monitor the input source (bass guitar) through track 3.

7. Raise channel fader 3 to an appropriate position, then set [TRACK PAN] control 3 to the center position.

Now, you can monitor the bass guitar sound panned to the center.

8. To practice the bass part while listening to the recorded rhythm machine sound, press the [F4] (SELECT) key while the Main screen is displayed, then turn the [JOG] wheel to select the "METER/MONI" function.

While the Main screen is displayed, the [F1]-[F4] keys operate as "Q-Link Function" keys that enable you to change the internal settings of the DPS16 quickly. Select the desired function using the [F4] key and the [JOG] wheel (the currently selected function is highlighted, with "►" mark indicated), and use the [F1]-[F3] keys to change the parameter settings. The METER/MONI function enables you to select a signal to be indicated on the level meters, or a signal to be monitored through a record-ready track.



9. Press the [F3] key to set the STANDBY TRACK MONITOR parameter to "SOURCE".

When you play the DPS16, you can monitor the input source through the record-ready track (not the track playback sound). For example, while listening to the track playback sound (tracks 1 and 2 in this example) and the input signal through the record-ready track (the bass sound in this example), you can practice your performance.

10. Play the DPS16 and practice the bass part while monitoring tracks 1 and 2.

// TIP : You can also use the Rehearsal function to practice your performance. (See page 52.)

11. When you are satisfied with your practice, set the STANDBY TRACK MONITOR parameter to "PLAY".

Now, when you play the DPS16, you can monitor the track playback sound through the record-ready track. This setting is useful for punch in/out recording.

12. Press the [▶] button while pressing and holding down the [REC] button.

Track 3 starts recording. Tracks 1 and 2 (for which the [RECORD SELECT] keys are turned off) output the track playback sound and track 3 (for which the [RECORD SELECT] key is turned on) outputs the input source. You can check the level meter in the Main screen for the output level of each track and the output level of the master L/R.

13. When recording is complete, press the [■] button to stop the DPS16.

Using the Undo/Redo functions

If you are not satisfied with a recording, you can use the Undo function to cancel the previous recording. With the DPS16's default setting, the undo level is set to "1". (The undo level is a parameter that determines the number of previous operations you can undo. The setting "1" means that you can restore one previous operation.) You can set this value in a range from 0 to 250, inclusive. (See page 109 for more information.) The operation of the Undo function is slightly different between undo level 1 and undo level 2 or higher.

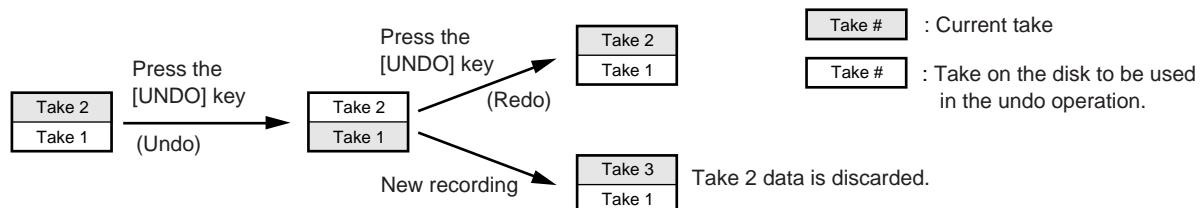
Undo level = 1 (default setting)

1. Right after you make a recording, press the [UNDO] key.

One previous take that was recorded or edited is stored on the disk. Pressing the [UNDO] key causes the DPS16 to return to the status prior to the most current recording or edit. The LED above the [UNDO] key will light up. (Undo)

2. If you wish to cancel the undo operation, press the [UNDO] key again.

Pressing the [UNDO] key again after the undo operation will restore the status obtained before you performed the undo operation. The LED will turn off. (Redo) However, if you made a new recording or edit after the undo operation, the take that was canceled by the first undo operation will be discarded.



Undo level = 2 or higher

When the undo level is set to 2 or higher, the corresponding number of takes is stored on the disk. Press the [UNDO] key and specify the number of operations you wish to be able to return to.

1. Right after recording or editing is complete, press the [UNDO] key.

The Undo/Redo window appears, in which you may specify the number of operations you wish to undo.



2. Turn the [JOG] wheel to enter the number of undo operations.

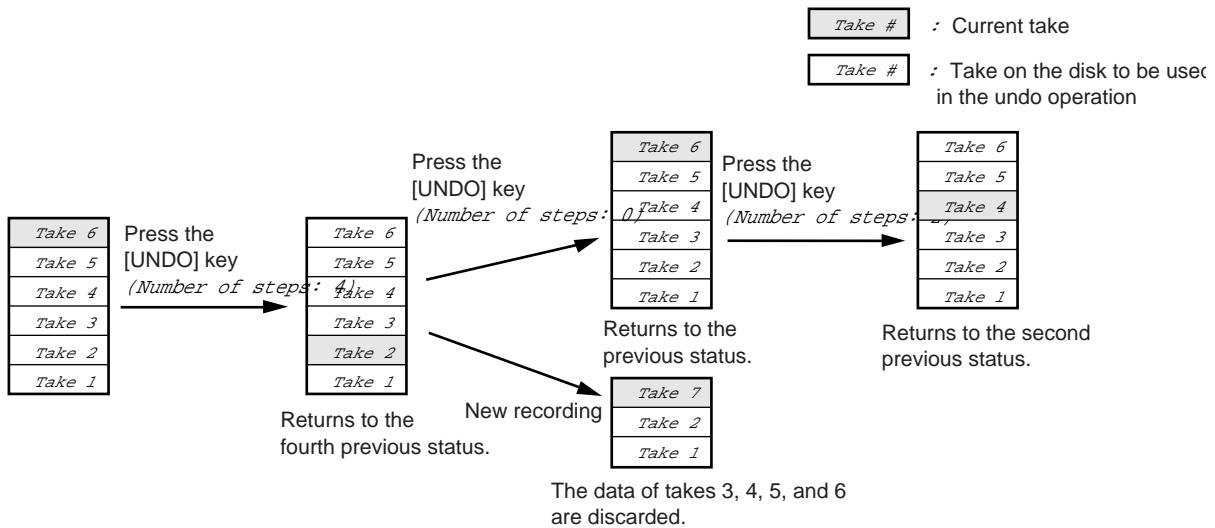
For example, if you wish to return to the fourth previous status, enter "4".

3. Press the [F6] (DO IT) key.

The DPS16 returns to the previous status you specified, and the LED above the [UNDO] key lights up.

4. Press the [UNDO] key again to specify a different number of undo operations.

If you press the [UNDO] key again right after you performed the undo operation, you can specify the number of undo operations again. However, if you have made a new recording or edit after the undo operation, the take that was canceled by the first undo operation will be discarded.



►NOTES :

- Remember that the higher the undo level, the greater the amount of data that must be stored on the disk, thus reducing available recording time.
- If you set the undo level to 0, pressing the [UNDO] key will not activate the Undo function.

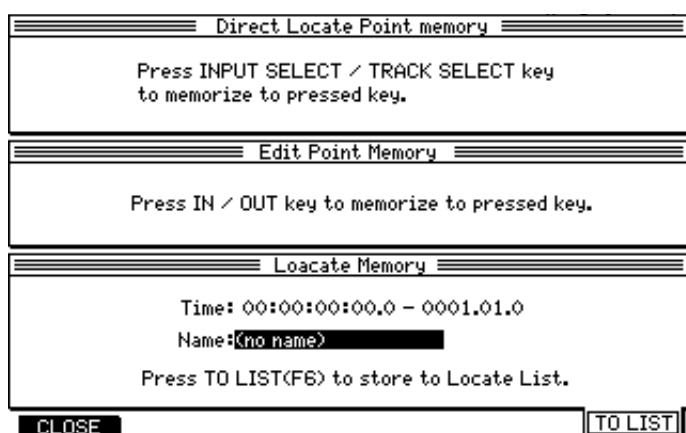
Punch In/Out

The Punch In/Out function enables you to re-record only a specified region on a track that has already been recorded. The DPS16 offers a “Manual Punch In/Out function” that uses the transport buttons and a foot switch, and an “Auto Punch In/Out function” that automatically performs the punch in/out operation at specified positions. In this example, we will modify part of the bass guitar performance recorded on track 3, using the Auto Punch In/Out function. First, you need to specify and store the punch in point (IN point) and the punch out point (OUT point).

1. Press the [▶] button to play back the song from the beginning.

2. Press the [MEMORY] key at the point where you wish to punch in.

The following three windows appear. The Time field on the Locate Memory window at the bottom indicates the time at which you pressed the [MEMORY] key.



3. Press the [IN] key.

The windows close and the captured time is stored in the [IN] key. You can use the time (point) stored in the [IN] key (this is called “IN point”) as a direct locate point, as well as a punch in point.

4. In the same way, store the punch out point (OUT point) in the [OUT] key.
5. Press the Quick Function [F4] (SELECT) key and turn the [JOG] wheel to select the AUTO PUNCH function.



While the DPS16 displays the Main screen, the [F1] – [F4] function keys are used to quickly edit various internal settings. First, press the [F4] (SELECT) key, then turn the [JOG] wheel to select a function you want to set. The parameters displayed in the positions of the [F1] – [F3] keys vary depending on the function you select. Use the [F1] – [F3] keys to edit the parameters.

6. Press the [F3] key to set the AUTO PUNCH field to on.

Now the Auto Punch In/Out function is turned on.



7. Locate a point a little before the punch in point.

8. Make sure that [RECORD SELECT] key 3 is turned on.

9. Press the [▶] button.

Playback starts. The [▶] button's LED lights up and the [REC] button's LED flashes. The previously recorded sound is played from the recorder section.

10. When the punch in point is reached, start playing the bass guitar.

- When the time counter value reaches the IN point:

The [REC] button's LED lights up, and the record-ready track starts recording.

- When the time counter value reaches the OUT point:

The [REC] button's LED turns off and the DPS16 automatically resumes playback.

11. Press the [■] button to stop playback.

Refer to “Chapter 4: Punch In/Out” on page 49 for more information on the Punch In/Out function.

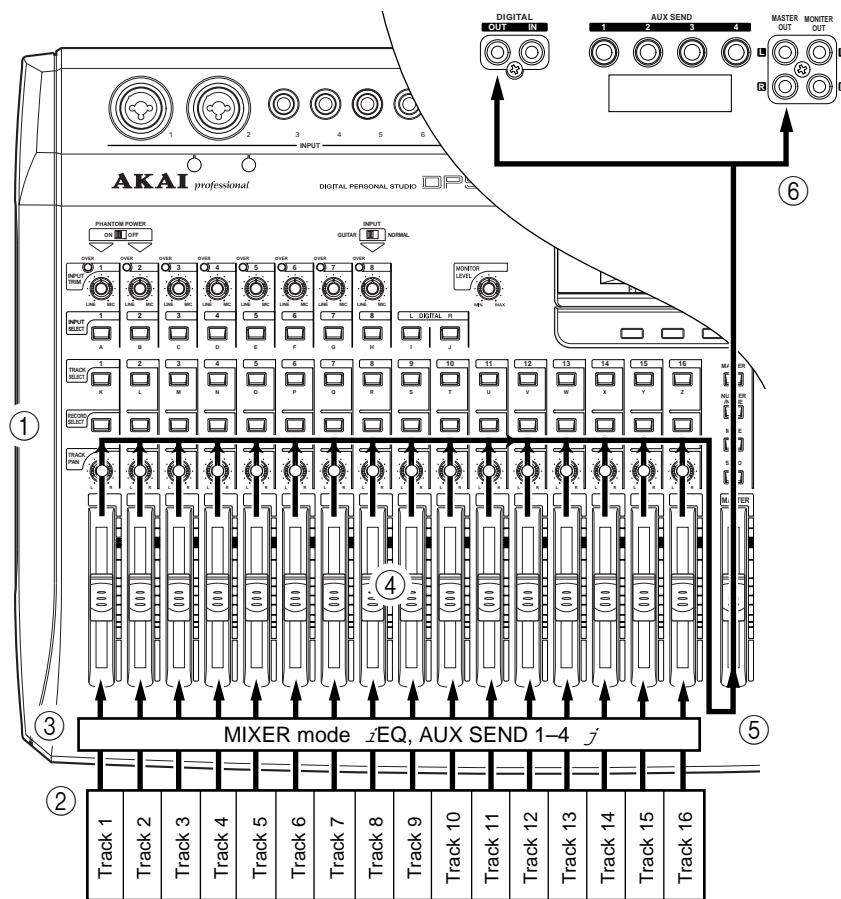
✓ TIP : Using the Rehearsal function enables you to practice punch in/out recording. See page 52 for more information.

Mixdown

You can repeat the steps described thus far to record up to sixteen tracks. However, this does not mean that you now have a completed work. Next, you will need to set the level and pan for each recorded track, and record the data onto a connected DAT tape recorder or cassette tape recorder. This phase of the recording process is called “mixdown”.

Signal flow during mixdown

The following diagram shows the signal flow during mixdown.



- ① Turn off all the [RECORD SELECT] keys on the top panel.
- ② The playback sound from tracks 1–16 is directly routed to TRACK MIX channels 1–16 of the mixer section.
- ③ If necessary, adjust the EQ (equalizer) and AUX send (1–4) level settings for each channel in Mixer mode.
- ④ Use channel faders 1–16 and [TRACK PAN] knobs 1–16 on the top panel to set the level and pan for TRACK MIX channels 1–16.
- ⑤ Signals that have passed through the channel faders and the [TRACK PAN] knobs are mixed into a stereo signal and fed to the master section (Master bus L/R).
- ⑥ The signal adjusted by the master fader for the output level is output to the master recorder connected to the MASTER OUT jacks and DIGITAL OUT jack.

Mixdown procedure

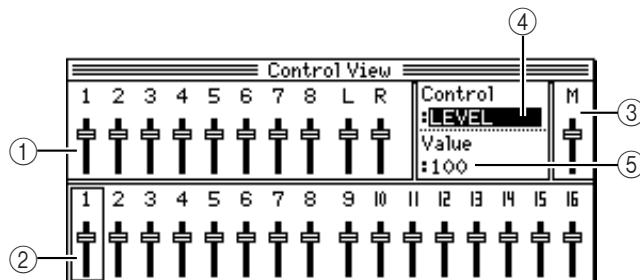
1. Make sure that the master recorder is connected to the MASTER OUT jacks or the DIGITAL OUT jack.
2. Turn off all of [RECORD SELECT] keys 1–16.
3. Play back the song from the beginning on the DPS16, and adjust the channel faders, the [TRACK PAN] knobs, and the master fader to appropriate positions.
At this time, you can check the output levels of the tracks and the output level of the Master L/R by observing the level meters on the Main screen. Adjust the channel faders and the master fader so that the Master L/R output level does not reach the maximum level.
4. When you are satisfied with the level and pan settings, rewind the song to the top.
5. Start recording on the master recorder, then start playback on the DPS16.
6. When the end of the song is reached, stop the master recorder and the DPS16.

Using Mixer mode

As explained thus far, you can use the [TRACK PAN] knobs and the channel faders to adjust panning and levels of TRACK MIX channels 1–16 of the mixer section. However, the mixer section offers more mix parameters. For example, each of TRACK MIX channels 1–16 has a three-band EQ and the AUX send 1–4 parameters. These mix parameters are controlled in Mixer mode. This section explains how to use Mixer mode during mixdown.

1. Press the [MIXER] key.

The DPS16 enters Mixer mode and displays the following screen. This is a Control View page that indicates some mix parameters for all channels.



① This field indicates the settings for INPUT MIX channels (1–8, and DL/DR).

② This field indicates the settings for TRACK MIX channels (1–16).

③ This field indicates the output level of the master section (Master bus L/R) or the master levels of AUX send 1–4.

④ Control

This field enables you to select a mix parameter to be controlled in the Control View page.

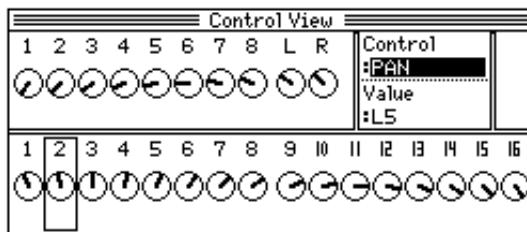
⑤ Value

This field indicates the value of the target parameter.

2. Move the cursor to the Control field and turn the [JOG] wheel to select a mix parameter from the following options:

- LEVEL
- PAN
- BUS (turning on/off the signal routed to the ping-pong bus)
- CHANNEL ON/OFF
- SEND ROUTE 1–4 (turning on/off the signals routed to AUX send 1–4)
- SEND LEVEL 1–4 (levels of the signals sent to AUX send 1–4)

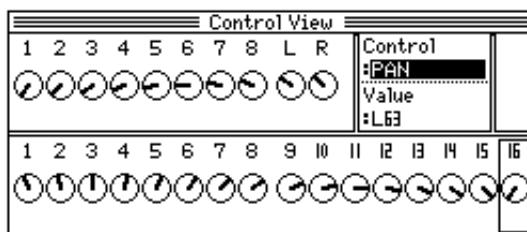
- EQ ON/OFF (equalizer on/off)
- EQ HIGH FREQ (center frequency in the high range)
- EQ HIGH LEVEL (boost/cut amount in the high range)
- EQ MID FREQ (center frequency in the middle range)
- EQ MID LEVEL (boost/cut amount in the middle range)
- EQ MID WIDTH (band width in the middle range)
- EQ LOW FREQ (center frequency in the low range)
- EQ LOW LEVEL (boost/cut amount in the low range)



<ex. The PAN parameter is selected.>

3. Use [TRACK SELECT] keys 1–16 on the top panel to select a target TRACK MIX channel.

In the Control View page, use the [INPUT SELECT] keys (for INPUT MIX channels), [TRACK SELECT] keys (for TRACK MIX channels), and [MASTER] key (for the master section) to select a channel to control. A square (cursor) on the screen indicates the currently selected channel.

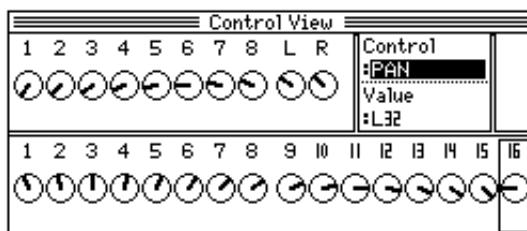


<ex. TRACK MIX channel 16 is selected.>

TIP : You may also move the cursor to a graphic field for any channel, using the [CURSOR] key.

4. Move the cursor to the Value field and rotate the [JOG] wheel to change the parameter value.

The selected channel parameter changes its value.



5. In the same way, set the other mix parameters and the parameters for other channels.

TIPS :

- You can use the transport functions and the locate function in Mixer mode in the same way as in Main mode.
- In Mixer mode, you can use the Channel View page to display all parameters for certain channels. (See page 70.)
- You can edit mix parameters using the six knobs in the QLMC section. (See page 75.)

Completing operations on the DPS16

Follow the steps below to turn off the power to the DPS16 and connected peripheral devices after you finish recording or mixdown.

1. Turn off the power to the monitor system.
2. Make sure that the DPS16's internal hard disk and the external drive are not accessed. Turn off the power to the DPS16. Use the Disk Busy field on the Main screen to check to see whether or not the disks are being accessed. (See page 14 for more information on the Main screen.)
3. Turn off the power to the external drive, sound sources, and other connected peripherals.

✓ TIPS :

- All track audio data and setup data for the Project you were just working on is automatically stored on the current disk (internal hard disk or the external drive).
- AKAI recommends that you back up important Projects to an external SCSI device or DAT recorder. For more information, see page 118.

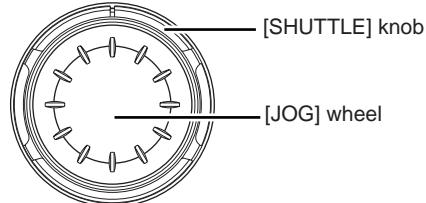
Chapter 3: Transport/Locate Operation

This chapter describes the transport and locate operations of the DPS16.

Using the transport functions

The DPS16 enables you to perform normal transport operations, such as playback, recording, and fast rewind, as well as jog playback using the [JOG] wheel and shuttle playback using the [SHUTTLE] knob.

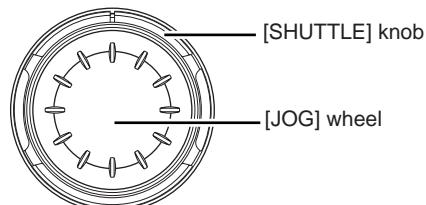
Transport buttons



The following table summarizes the functions of the transport buttons in different modes of the DPS16.

	Recording	Playback	Stop	Fast forward	Rewind
Press the [REC] button.	—	Pressing the [▶] button while holding down the [REC] button causes the DPS16 to start recording. Punch In recording (The [▶] and [REC] LEDs light up.)	Pressing the [REC] button while holding down the [▶] button causes the DPS16 to start recording. (The [▶] and [REC] LEDs light up.)	—	—
Press the [▶] button.	Recording is cancelled, and normal playback resumes. Punch Out recording (The [▶] LED lights up.)	—	The LED lights up and normal playback resumes.	Fast forward is cancelled, and normal playback starts. (The [▶] LED lights up.)	Rewind is cancelled, and normal playback starts. (The [▶] LED lights up.)
Press the [■] button.	Stops.	Stops.	—	Stops.	Stops.
Press the [▶▶] button.	—	Fast forward while playing back sound (cue).	Fast forward.	Fast forward at higher speed.	Switches to fast forward.
Press the [◀▶] button.	—	Rewinds while playing back sound (review).	Rewind.	Switches to rewind.	Rewind at higher speed.

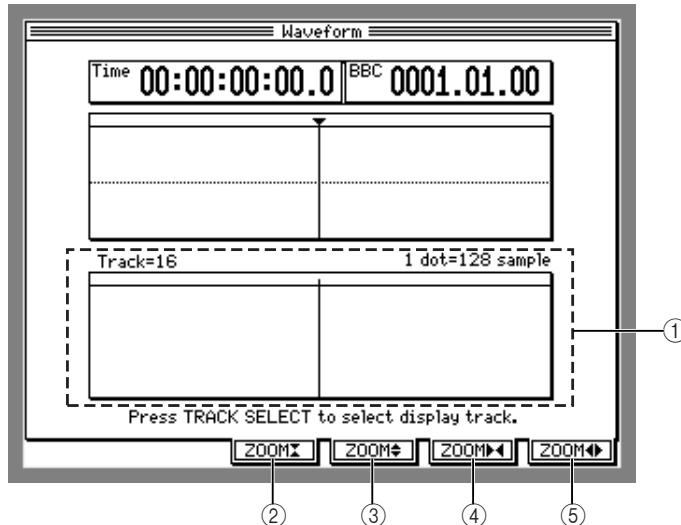
Using the [JOG] wheel/[SHUTTLE] knob



Follow the steps below to adjust playback speeds and directions to monitor a track using the [JOG] wheel/[SHUTTLE] knob.

1. Press the [WAVEFORM] key.

The DPS16 enters Waveform mode and displays the following screen.



(1) Displays the audio waveform of the currently selected track.

(2) [F3] (ZOOM \times) key

(3) [F4] (ZOOM \downarrow) key

These function keys are used to zoom the waveform in and out vertically.

(4) [F5] (ZOOM \rightarrow) key

(5) [F6] (ZOOM \leftrightarrow) key

These function keys are used to zoom the waveform in and out horizontally.

2. Select a monitoring track using the [TRACK SELECT] key.

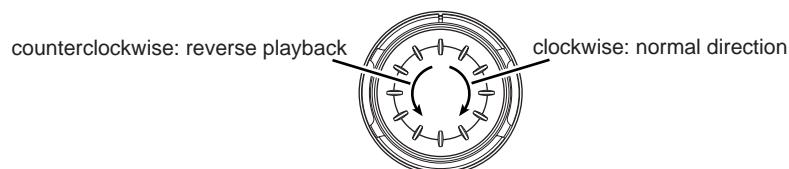
3. Turn the [JOG] wheel or [SHUTTLE] knob.

As you turn the wheel or knob, the selected track is played and a vertical line on the waveform display moves back and forth following the direction in which you rotate the wheel, indicating the current point.

The [JOG] wheel and [SHUTTLE] knob have the following functions in Waveform mode.

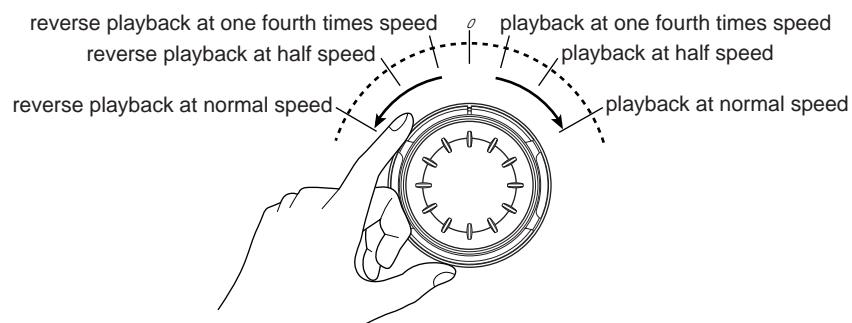
[JOG] wheel

Rotating the [JOG] wheel clockwise plays the track data in the normal direction. Rotating the wheel counter-clockwise plays the selected track data in the reverse direction. The playback speed varies depending on how fast you turn the wheel. This function is useful when you wish to locate a precise position in a song.



[SHUTTLE] knob

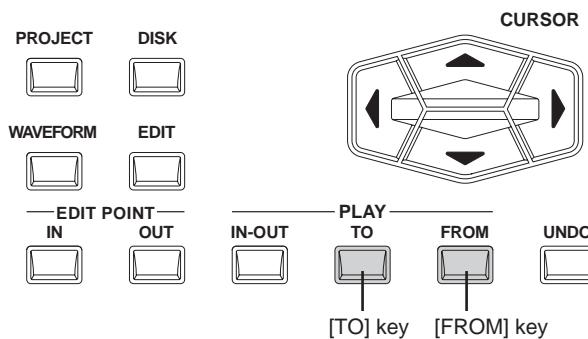
Rotating the [SHUTTLE] knob clockwise plays the track data in the normal direction. Rotating the knob counter-clockwise plays data in the reverse direction. The playback speed varies between approximately one fourth (1/4) times speed and normal speed. This function is useful when you wish to find an approximate position in a song.



4. When you finish using the [JOG] wheel/[SHUTTLE] knob, press the [MAIN SCREEN] key or any other mode key to exit Waveform mode.

The [JOG] wheel/[SHUTTLE] knob are restored to their original functions.

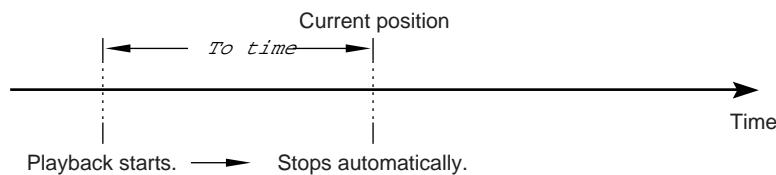
Using the [IN-OUT] / [TO] / [FROM] keys



The DPS16 plays a section for a few seconds up to the current time, or a section for a few seconds from the current time, when you press the [TO] key or [FROM] key respectively while the transport section of the DPS16 is stopped. This technique is useful when you wish to set IN/OUT points while auditioning the data, or play back a particular section repeatedly. Pressing the [IN-OUT] key causes the range specified between the IN point and OUT point to play once.

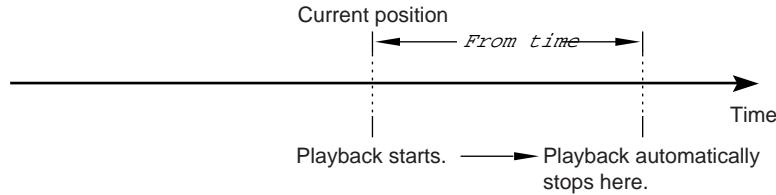
■ Using the [TO] key

When you press the [TO] key while the DPS16 is stopped, playback starts from a point a few seconds preceding the current point (where you just pressed the [TO] key) and stops playing at the current point. Set the playback duration (To time) in Setup mode. (See page 108.)



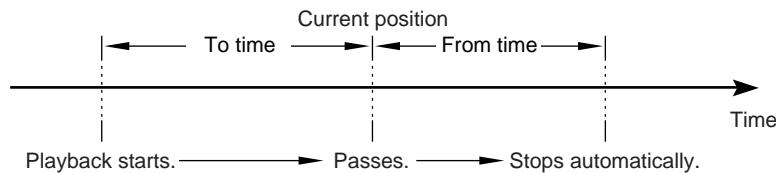
■ Using the [FROM] key

When you press the [FROM] key while the DPS16 is stopped, playback starts and continues for the specified number of seconds, then returns and stops at the current (NOW) point (where you just pressed the [FROM] key). Set the playback duration (From time) in Setup mode. (See page 108.)



■ Using both [TO] and [FROM] keys

Pressing the [FROM] key during the TO playback operation will cause the DPS16 to continue playing back skipping over the current (NOW) point. (That is, the DPS16 will play back the amount of "To time" + "From time.")



■ Using the [IN-OUT] key

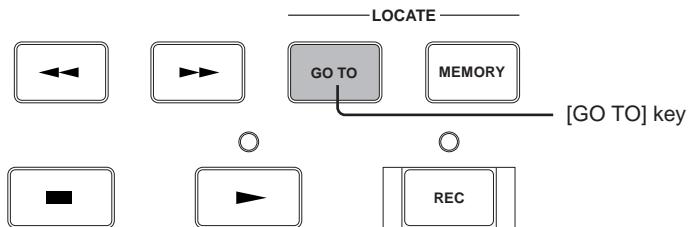
When you press the [IN-OUT] key, the DPS16 plays back the range specified between the IN and OUT points once and stops. This key is useful when you wish to check the punch in/out points.

Locate operation

You may specify up to 100 points (locate points) in a song and store them to help you locate points quickly. The DPS16 also features a Direct Locate function that enables you to assign a locate point to a key on the panel and locate the point with a simple key operation. This section explains various locate operations.

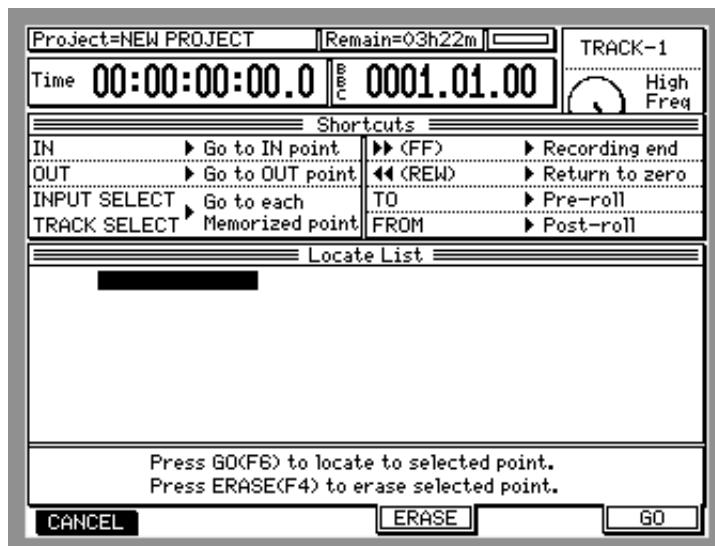
Locating the zero position of the time counter

The DPS16 can locate the zero position of the time counter. Follow the steps below.



1. Press the [GO TO] key while the DPS16 is stopped.

The Shortcuts/Locate List window appears.



2. Press the [REW] key.

The DPS16 locates the zero position of the time counter and the window closes.

►►NOTE : If the time counter indicates the ABSO (absolute time value), the time position at the top of the Project is located. If the time counter indicates the RELA (relative time value), the DPS16 locates the zero position of the relative time.

Locating the end point of a song

The DPS16 can locate the end point of a song.

►►NOTE : The end point of a song means the last position of the audio data in physical tracks 1–16.

- 1. Press the [GO TO] key while the DPS16 is stopped.**

The Shortcuts/Locate List window appears.

- ## 2. Press the [►] button.

The DPS16 locates the end point of the song and the window closes.

The [GO TO] key also has the following Locate functions:

- Press the [GO TO] key, then press the [INPUT SELECT] key or the [TRACK SELECT] key to move to the Direct Locate point. Refer to page 46 for more information on how to store the Direct Locate point.
 - Press the [GO TO] key, then press the [IN] or [OUT] key to move to the In point or the Out point. Refer to page 47 for more information on how to store the IN and Out points.
 - Press the [GO TO] key, then press the [TO] key to move from the current time to a point slightly before the TO time specified in Setup mode. This function is called “pre-roll,” and is useful for locating a point slightly before the punch in point during punch in/out recording.
 - Press the [GO TO] key, then press the [FROM] key to move from the current time to a point slightly after the FROM time specified in Setup mode. This function is called “post-roll.”

Entering a time value in the counter

You may enter a time in the counter directly to locate the corresponding position.

- 1. On the Main screen, move the cursor to the time counter field and press the [NUMBER/NAME] key.**

The time counter value disappears, enabling you to enter the desired value. At this time, the [RECORD SELECT] 1–10 keys function as number keys.

- 2. Use the [RECORD SELECT] 1-10 (1-0) keys to enter the desired time value.**

For example, if you enter $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 0 \rightarrow 0$, the time counter indicates the numbers in the following order.

...:...:...:...:1
...:...:...:...:1.2
...:...:...:12.3
...:...:12.34.4
...:12.34.0
...:12.34.40.0

3. When you finish entering the value, press the [NUMBER/NAME] key again.

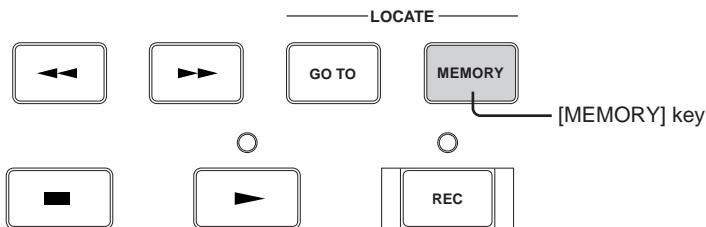
The DPS16 locates the position that corresponds to the time value.

TIPS:

- You may use the [SHUTTLE] knob and the [JOG] wheel instead of pressing the [NUMBER/NAME] key to enter the time value. To do this, move the cursor to the time counter field, rotate the [SHUTTLE] knob to select a digit, and use the [JOG] wheel to set the number.
 - You may also specify a locate point in bar/beat/clock by moving the cursor to the BBC counter field. This is useful when the DPS16 is synchronizing the MIDI sequencer. See page 134 for more information.

Storing locate points

You can name and store up to 100 points in a song. You can store a position at which the mood of a song changes, such as bridges or choruses, to facilitate overdubbing later.



- Press the [MEMORY] key at the position you wish to store the desired point.**

You may store locate points while the DPS16 is recording, playing, or stopped. When you press the [MEMORY] key again, the next Locate Memory window opens, indicating the time value in the Time field at which you pressed the [MEMORY] key and “(no name)” in the Name field.

- Name the locate point, such as “INTRO” or “CHORUS”, if necessary.**

✓ TIP : See page 17 for more information on how to enter characters.

- To change the time value, move the cursor to the Time field and enter a new value.**

- Press the [F6] (TO LIST) key to store this position as the locate point.**

The locate point is stored in the locate list.

►NOTE : Press the [F1] (CLOSE) key to cancel the operation without storing the point.

Moving to a locate point

You can recall a locate point stored in the locate list and move to the locate point.

- Press the [GO TO] key while the DPS16 is stopped.**

The Locate List window appears, showing the list of stored locate points.

- Use the [CURSOR] keys or the [JOG] wheel to select the desired locate point from the list.**

✓ TIPS:

- You can also store locate points to the [INPUT SELECT] keys or the [TRACK SELECT] keys and recall the locate points using those keys.
- Alternatively, you can store locate points to the [IN]/[OUT] keys. Those points (IN/OUT points) are used to specify the edit area. (See page 47.)

- Press the [F6] (GO) key.**

The window closes, and the selected point is located.

✓ TIP : Press the [F1] (CLOSE) key to cancel the locate function.

Deleting a locate point from the locate list

You can delete a locate point stored in the locate list.

1. Press the [GO TO] key while the DPS16 is stopped.
The Locate List window appears, showing the list of stored locate points.
2. Use the [CURSOR] keys or the [JOG] wheel to select a locate point you wish to delete.
3. Press the [F4] (ERASE) key.
The selected locate point is deleted.

// TIP : Press the [F1](CLOSE) key to cancel the delete operation.

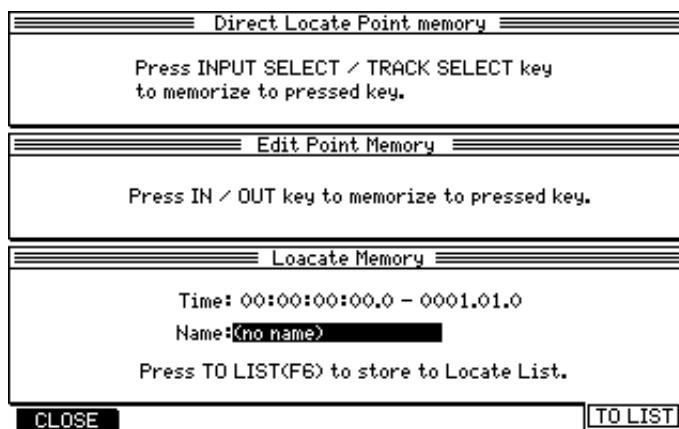
Using the Direct Locate function

The Direct Locate function enables you to assign locate points to the [INPUT SELECT] keys and the [TRACK SELECT] keys to locate a point immediately.

■ Storing direct locate points

1. Press the [MEMORY] key to capture the desired locate point.

You may store locate points while the DPS16 is recording, playing, or stopped. When you press the [MEMORY] key, the following Locate Memory window opens, indicating the time value in the Time field at which you pressed the [MEMORY] key.



2. Press one of the [INPUT SELECT] keys or [TRACK SELECT] keys.

The captured locate point is stored in the specified key as a direct locate point.

// TIP : Press the [F1](CLOSE) key to cancel the operation.

■ Using the stored direct locate points

1. Press the [GO TO] key while the DPS16 is stopped.

The Locate List window appears.

2. Press one of the [INPUT SELECT] keys or the [TRACK SELECT] keys.

The DPS16 locates the point stored in the key you pressed and closes the window.

IN point and OUT point

You may also store locate points to the [IN] key and the [OUT] key in the same way as for the [INPUT SELECT] keys and the [TRACK SELECT] keys to later recall the points directly. In addition, you can use the locate points stored in the [IN]/[OUT] keys (these points are called the “IN point” and “OUT point”) not only for the locate operation but to specify the area for re-recording (punch in/out) or the edit area.

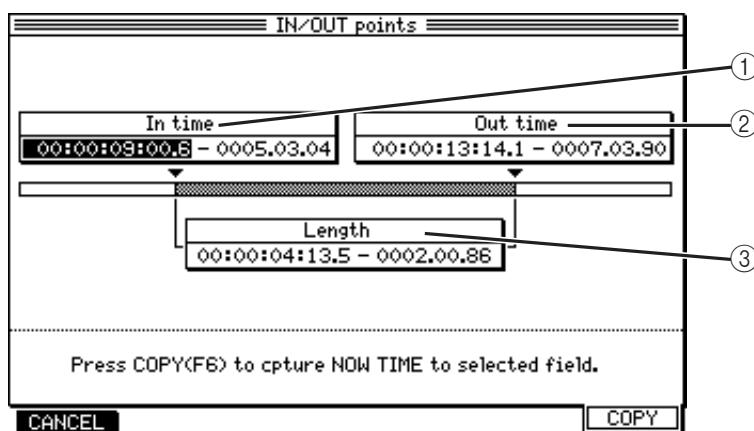
Storing the IN point and OUT point

To store the IN/OUT points, you can directly enter the time value or assign direct locate points to the [IN]/[OUT] keys.

■ Specifying the IN/OUT points by the time values

1. Press the [IN] key or the [OUT] key.

The DPS16 displays the IN/OUT points window where you can specify the IN/OUT points.



① In time

Indicates the time/BBC value of the IN point.

② Out time

Indicates the time/BBC value of the OUT point.

③ Length

Indicates the length between the IN and OUT points.

2. Move the cursor to the In time or Out time field and enter the desired time value (or enter the BBC value in the BBC field). For more information on how to enter the value, refer to page 16.

When you change the time or BBC value of the IN/OUT points, the Length field will be updated. When you press the [F6] (COPY) key, the current position of the DPS16 is entered to the selected field.

■ Storing direct locate points to the [IN]/[OUT] keys

1. Press the [MEMORY] key to capture the desired locate point.

You may store locate points while the DPS16 is recording, playing, or stopped. When you press the [MEMORY] key, the next Locate Memory window opens, indicating the time value in the Time field at which you pressed the [MEMORY] key.

2. Press the [IN] or [OUT] key.

The captured locate point is stored as the IN point or OUT point.

// TIP : Press the [F1] (CLOSE) key to cancel the operation.

■ Using the stored direct locate points

1. Press the [GO TO] key while the DPS16 is stopped.

The Locate List window appears.

2. Press the [IN] key or the [OUT] key.

The DPS16 locates the point stored in the key you pressed and closes the window.

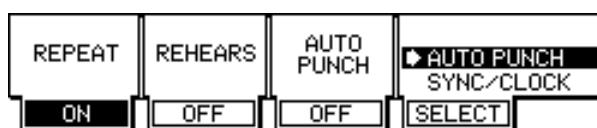
Repeat function

The Repeat function plays back data between the IN point and the OUT point repeatedly.

1. Press the [F4] (SELECT) key and turn the [JOG] wheel to select the AUTO PUNCH function.

2. Press the [F1] (REPEAT) key to set the REPEAT parameter to ON.

Now the Repeat function is enabled.



3. Press the [▶] button.

The data between the IN point and the OUT point is repeatedly played.

If you start playing back from a position preceding the OUT point, the playback continues up to the OUT point, then returns to the IN point, and the data between the IN and OUT points is repeatedly played. If you start playing back from a position after the OUT point, the DPS16 locates the IN point first, then starts playback.

Chapter 4: Punch In/Out

Punch In/Out is a function that enables you to re-record only a specified part of the already recorded track(s). This function is useful when you wish to correct mistakes in a recorded performance or extend the recording.

The DPS16 offers two types of Punch In/Out: Manual Punch In/Out (performing the punch in/out operation manually), and Auto Punch In/Out (performing the punch in/out operation automatically for a specified section). This chapter describes various uses of the Punch In/Out function.

Manual Punch In/Out

Manual Punch In/Out is to perform the punch in/out operation manually. You may use the transport buttons on the DPS16 or a connected foot switch to use this function. Using a foot switch is useful when you are playing instruments with both hands.

Punch in/out operation using the transport buttons

The [▶] button and the [REC] button are used in the punch in/out operation.

1. Locate a position a little before the punch in point.

✓ TIP : It is a good idea to locate about four measures before the punch in point for successful punch in/out.

2. Use the [RECORD SELECT] key to select a recording track.

The selected track's LED flashes, indicating that the track enters record ready mode.

3. Press the [▶] button.

The [▶] button's LED lights up and the playback starts. You can monitor the recorder's playback (previously recorded sound) through the record-ready track.

4. When the punch in point is reached, press the [REC] button while holding down the [▶] button.

The [REC] button's LED lights up and the selected track starts recording.

►NOTE : If the REHEARS parameter for the Auto Punch function of Q-Link Function Select has been turned on, the DPS16 enters "Rehearsal mode" in which you can practice the punch in operation before you record a real punch in take. Refer to page 52 for more information.

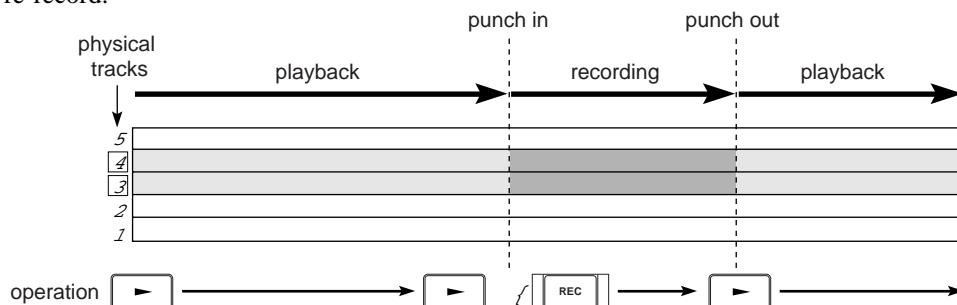
5. When the punch out point is reached, press the [▶] button.

The recording is cancelled and the DPS16 resumes playback.

►NOTE : The playback sound may be interrupted momentarily after punch out recording (also after auto punch out or punch out using a foot switch). This is not unusual since monitoring signal is switched. However, this interruption does not affect the recorded data.

6. Press the [■] button to stop playback.

If you are not pleased with the results of punch in/out recording, press the [UNDO] key to restore the original data, then re-record.



Punch in/out operation using a foot switch

This section explains how to perform the punch in/out operation using a foot switch. This is useful when you are playing instruments with both hands and you need to use your foot to punch in and out.

Before using a foot switch for punch in/out recording, make sure that the **Foot switch** field in the OTHER window in the Setup mode is set to “**PUNCH IN/OUT**”. (See page 109.)

1. Connect a foot switch to the [FOOT SW.] jack on the rear panel.

►NOTES :

- There are two types of foot switches: *normal open* (the contact is open when it is not pressed), and *normal closed* (the contact is closed when it is not pressed). If a foot switch has been connected to the DPS16, when you turn on the power to the DPS16, it automatically detects the type of foot switch connected. You can use either type of foot switch. If a foot switch is not connected to the DPS16, when you turn on the power to the DPS16, it automatically selects *normal open* mode.
- Do not use a latch-type foot switch (open/close switching type) since it will not be detected correctly.

2. Locate a position a little before the punch in point.

3. Use the [RECORD SELECT] key to select a recording track.

The selected track's LED flashes, indicating that the track enters record ready mode.

4. Press the [▶] button.

The [▶] button's LED lights up and the playback starts. You can monitor the recorder's playback (previously recorded sound) through the record-ready track.

5. When the punch in point is reached, press the foot switch.

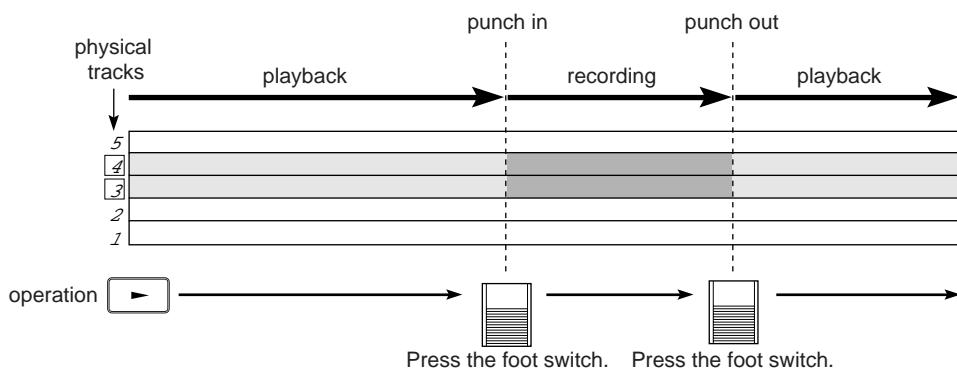
The [REC] button's LED lights up and the selected track starts recording.

►NOTE : If the REHEARS parameter for the Auto Punch function of Quick Function Select has been turned on, the DPS16 enters “Rehearsal mode” in which you can practice the punch in operation before you record a real punch in take. Refer to page 52 for more information.

6. When the punch out point is reached, press the foot switch again.

The recording is cancelled and the DPS16 resumes playback.

7. Press the [■] button to stop playback.



►TIP : When you perform punch in/out recording manually or using the foot switch, the punch in and out points are automatically stored as the In point and Out point respectively. For example, if you are not satisfied with your performance during punch in/out recording using the foot switch, you can use the auto punch in/out function to re-record, since the punch in/out points are already stored.

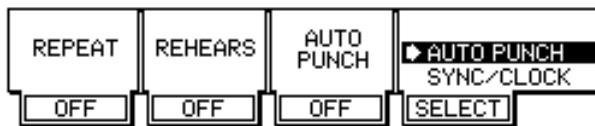
Auto Punch In/Out

Auto Punch In/Out is a function that automatically executes the punch in/out operation if you have specified punch in/out points. The benefit of this function is that you can concentrate on your performance without being distracted by the transport operation, making it easy to punch in/out even a very short phrase.

- Specify the desired punch in/out points as IN and OUT points.**

The IN point and OUT point are used to perform the Auto Punch In/Out function. (Refer to page 47 for more information on setting the IN/OUT points.)

- Press the [F4] (SELECT) key and rotate the [JOG] wheel to select AUTO PUNCH function.**



- Press the [F3] key to set the AUTO PUNCH parameter to “ON”.**

The Auto Punch In/Out function now turns on.



- Locate a position a little before the auto punch in point.**

- Use the [RECORD SELECT] key to select a recording track.**

The selected track's LED flashes, indicating that the track enters record ready mode.

- Press the [▶] button.**

Playback starts. The [▶] button's LED lights up and the [REC] button's LED flashes. The previously recorded sound is played from the recorder section.

- When the counter reaches the IN point:**

The [REC] button's LED lights up, and the selected track starts recording

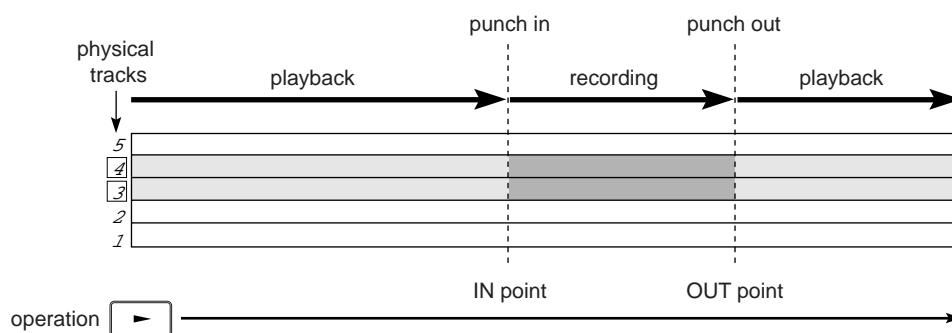
- When the counter reaches the OUT point:**

The [REC] button's LED turns off and the DPS16 resumes playback.

►NOTE : If the REHEARS parameter for the Auto Punch function of Q-Link Function Select has been turned on, the DPS16 enters “Rehearsal mode” in which you can practice the punch in operation before you record a real punch in take. Refer to page 100 for more information.

- Press the [■] button to stop playback.**

Playback stops. Once you perform punch in/out recording, the function is automatically turned off. To repeat auto punch in/out recording, repeat from step 2.



Punch In/Out Rehearsal

Rehearsal is a function that enables you to practice playing instruments or singing a song, pretending to punch in/out record, but nothing is actually recorded.

This is useful when you wish to practice the punch in/out timing and check the range of auto punch in/out. In this section, we offer the example of rehearsing the manual punch in/out operation and explain how to use the Rehearsal function.

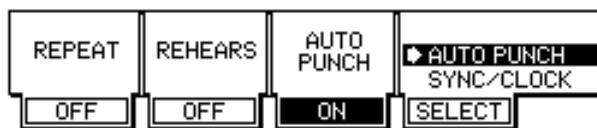
1. Locate a position a little before the punch in point.

✓ TIP : It is a good idea to locate about four measures before the punch in point for successful punch in/out.

2. Use the [RECORD SELECT] key to select a recording track.

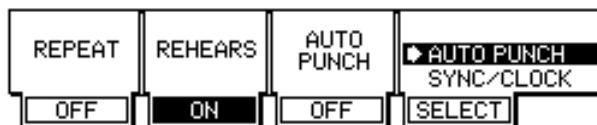
The selected track's LED flashes, indicating that the track enters record ready mode.

3. Press the [F4] (SELECT) key and rotate the [JOG] wheel to select AUTO PUNCH function.



4. Press the [F2] key to set the REHEARS parameter to "ON".

The Rehearsal function is now turned on. Nothing will be recorded under this condition.



✓ TIP : Press the [F2] key again to cancel the Rehearsal function.

5. Press the [▶] button.

The [▶] button's LED lights up and the playback starts. You can monitor the recorder's playback (previously recorded sound) through the record-ready track.

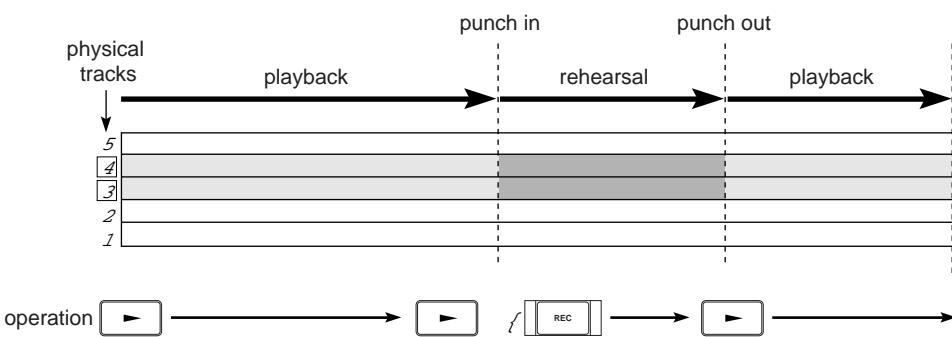
6. When the punch in point is reached, press the [REC] button while holding down the [▶] button.

The signal being monitored through the record-ready track switches from the recorder's playback sound to the input source sound, but nothing is recorded.

7. When the punch out point is reached, press the [▶] button.

The monitoring signal switches from the input source to the recorder's playback sound.

8. Press the [■] button to stop playback.



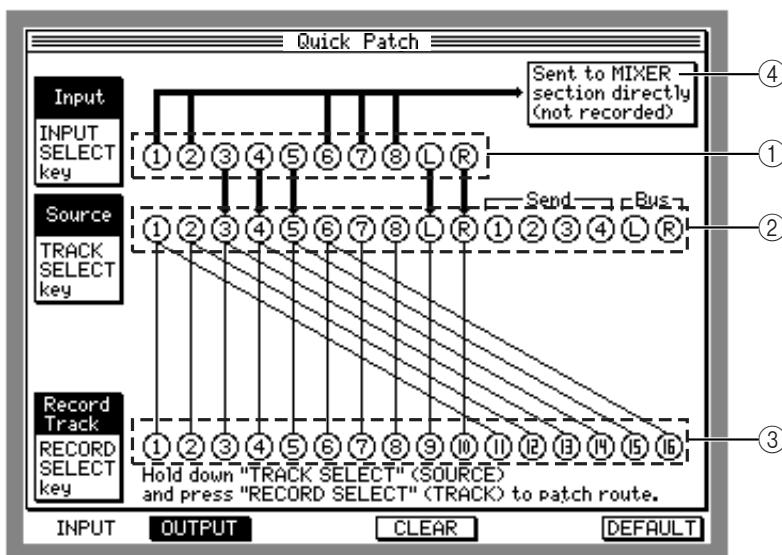
Chapter 5: Assigning Input Signals and Tracks (Quick Patch mode and V. Track mode)

This chapter describes functions and operations in Quick Patch mode for routing signals inside the DPS16 and in V. Track mode for assigning virtual tracks to physical tracks 1–16.

Main Quick Patch mode screen

When the DPS16 is set to default, signals input (for example) at INPUT jacks 1 and 2 are routed to tracks 1 and 2. In Quick Patch mode, you can change signal routings. For example, you can send INPUT 1 and 2 signals to tracks 3 and 4, or directly to the mixer's master section. Also, when the DPS16 is set to default, the MASTER OUT jacks on the rear panel output the MASTER bus signals. You can, instead, output the AUX bus signals or any track signals from the MASTER OUT jacks. In this way, Quick Patch mode is used to change the internal signal routing.

Pressing the [PATCH] key accesses the following Quick Patch screen (main Quick Patch mode screen).



This screen shows the following information.

① Input

Indicates the destination of the signals input at the INPUT jacks (1–8) and the DIGITAL IN jacks (L/R). A thick ascending line indicates a signal routed directly to the INPUT MIX channels on the mixer section. A thick descending line indicates a signal routed to the Source section (②), where you can select a recording source for physical tracks.

② Source

This section enables you to select recording sources for physical tracks 1–16 from the following options.

- 1–8 Input signal from INPUT jacks 1–8
- L/R Input signals from the DIGITAL IN jacks
- Send 1–4 Output signals from AUX buses 1–4
- Bus L/R Output signals from the ping-pong bus L/R

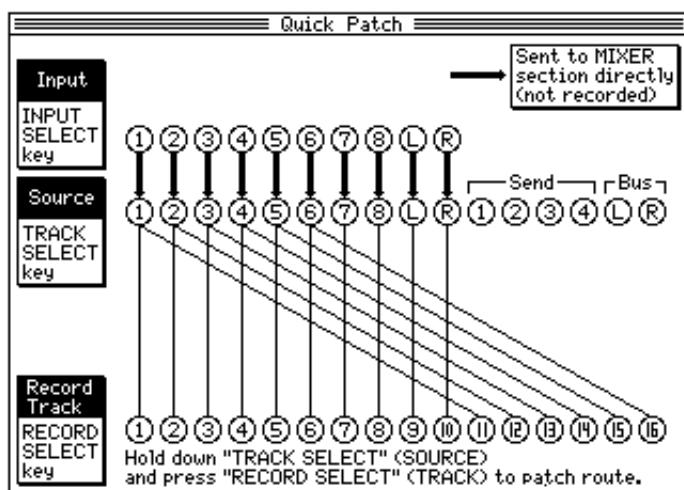
③ Record Track

Indicates physical tracks 1–16. Patch (connect) a track number (1–16) and a recording source in the Source section using a patch cable (the thin line shown on the screen) to select the desired recording source.

Basic operations in Quick Patch mode

Assigning recording sources to physical tracks

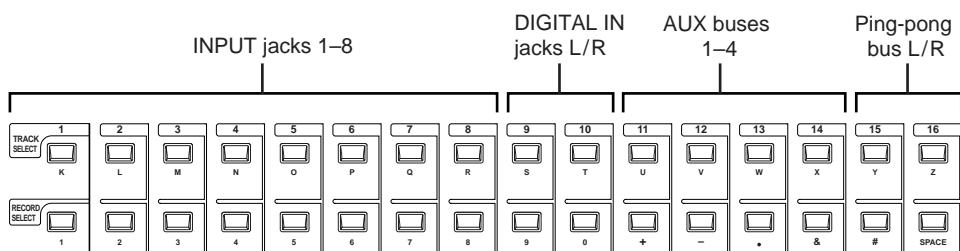
When the DPS16 is set to default, the signals from INPUT jacks 1–8 and DIGITAL IN jacks are routed to physical tracks 1–16. However, you can select any recording source for each track.



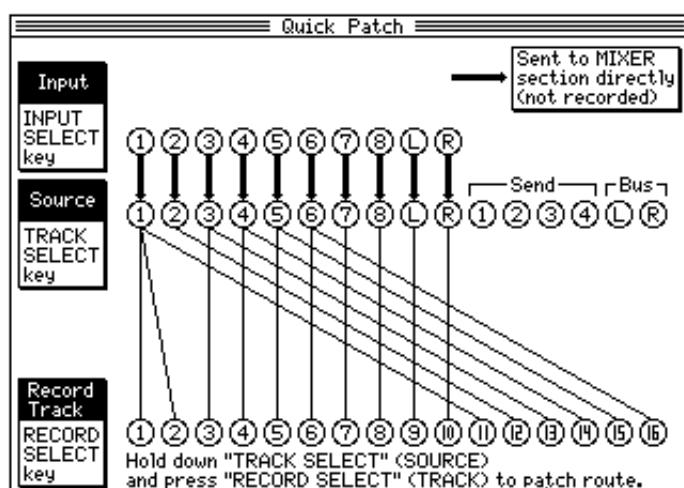
Patching (assigning) a recording source to a single track

To assign a recording source to a single track, while pressing and holding down the [TRACK SELECT] key that corresponds to the source, press the [RECORD SELECT] key of the destination track.

The following recording sources can be selected via the [TRACK SELECT] keys.



For example, while the Quick Patch screen shown above is displayed, pressing and holding down the [TRACK SELECT] 1 key and pressing the [RECORD SELECT] 2 key will change the setting as follows.

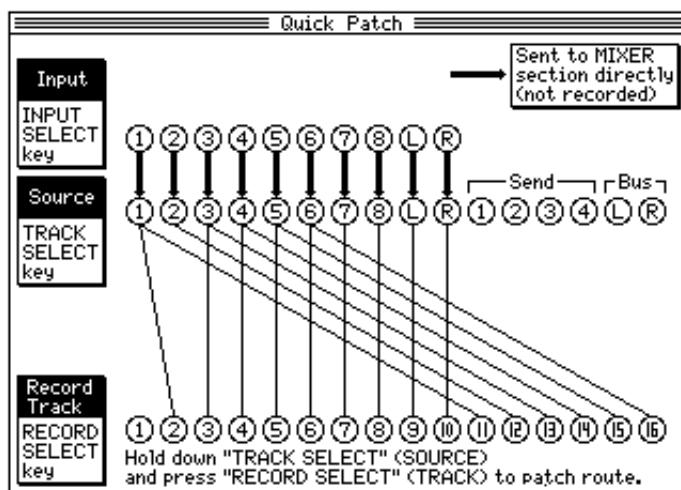


►NOTE : When you select the input signal as the recording source, make sure that the input signal is routed to the Source section on the Quick Patch screen (that is, a thick line is descending). Even if you select the input signal (an ascending thick line) sent directly to the master section, it will not be sent to any tracks. Use the [INPUT SELECT] key to change the direction of the thick patch line.

■ Canceling the patch

To cancel the patch, press and hold down the [TRACK SELECT] key of the recording source (that you wish to disconnect), and press the [RECORD SELECT] key of the corresponding track.

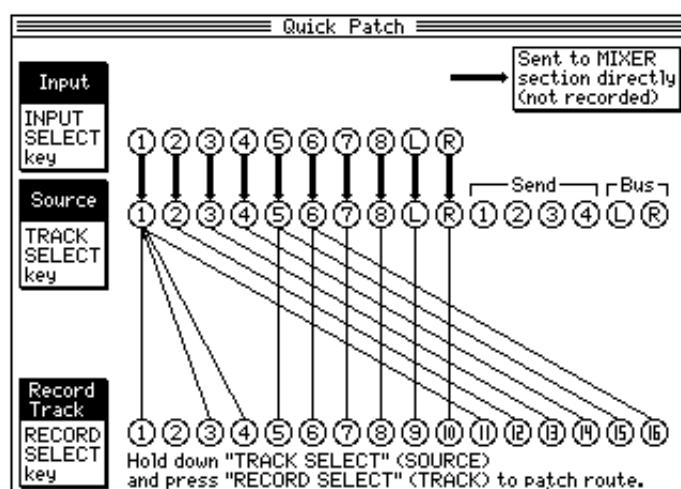
For example, while the Quick Patch screen shown above is displayed, pressing and holding down the [TRACK SELECT] 1 key and pressing the [RECORD SELECT] 1 key will change the setting as follows.



■ Routing a recording source to multiple tracks

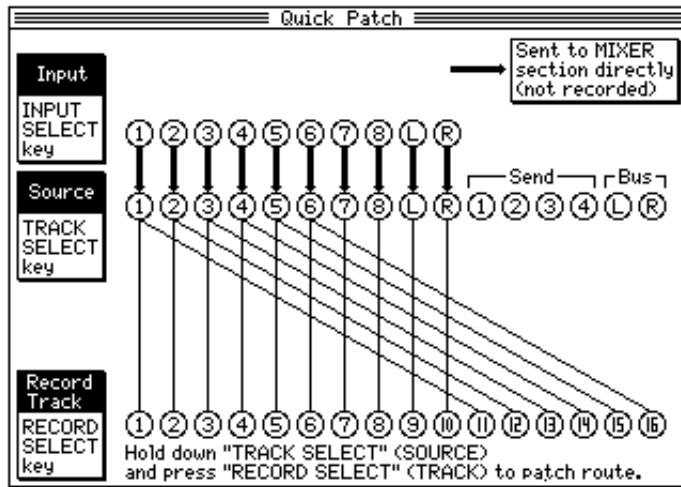
To route a recording source to multiple tracks, while pressing and holding down the [TRACK SELECT] key, press the [RECORD SELECT] keys of the desired tracks in order.

For example, while the Quick Patch screen shown above is displayed, pressing and holding down the [TRACK SELECT] 1 key and pressing the [RECORD SELECT] 1–4 keys will change the setting as follows.



Routing input signals directly to the mixer's master section

With the default settings, signals input at INPUT jacks 1-8 and the DIGITAL IN jack are routed via the source section to physical tracks 1-16. You can just turn on the desired tracks' [RECORD SELECT] keys to record.



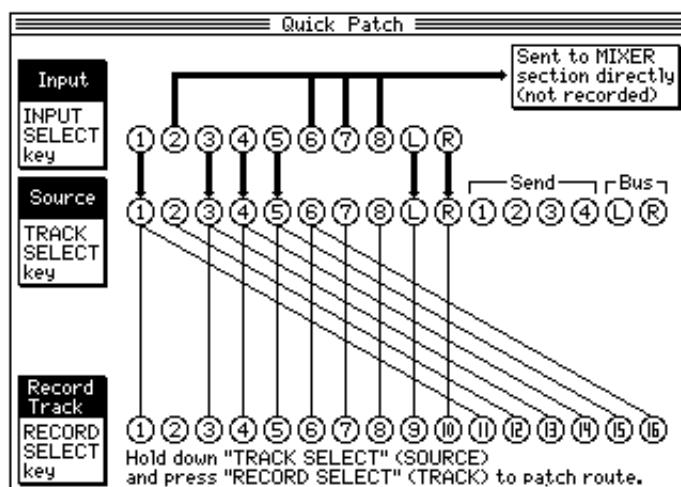
However, you may sometimes want to mix the input signals with the tracks' playback sound, without routing them via tracks. For example, you may want to overdub synth sound on top of the track playback sound during mixdown. In this case, you can send the input signals directly to the mixer's master section.

For example, if you route all 10 channel input signals directly to the mixer section after you record all tracks, you can mix 26 channel signals (16-track playback signals and 10 channel input signals).

If you are using an external effect unit via the AUX out, you can mix the playback sound from the DPS16 and the effect sound from the external effect unit by returning the effect signals from the effect unit to the input jacks of the DPS16 and routing the input signals directly to the mixer section.

To do so, make sure that the DPS16 is in Quick Patch mode, and press the corresponding [INPUT SELECT] key. Pressing the [INPUT SELECT] key each time will toggle between the master section and the source section as the signal's destination.

For example, when the Quick Patch screen is set in default as shown above, pressing [INPUT SELECT] keys 2, 6, 7, and 8 will cause the settings to change as follows:



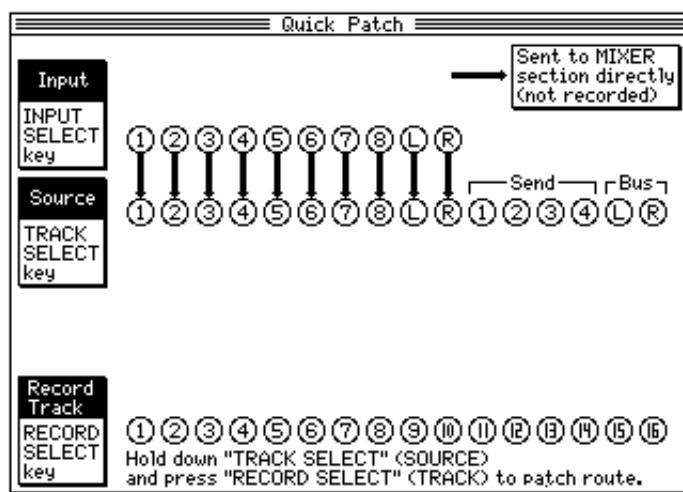
Under this condition, signals from INPUT jacks 2, 6, 7, and 8 are sent directly to the master section, thus not to be recorded to assigned tracks.

For the signals sent directly to the mixer (channel signals indicated by thick ascending lines), you can set the level, pan, EQ, and AUX on the Input Mix page in Mixer mode. For more information on the Input Mix settings, see page 64.

■ Erasing the patch

To erase the patch, press the [F4] (CLEAR) key in Quick Patch mode.

As shown below, all patches that connect the recording sources in the Source section and physical tracks will be cancelled.

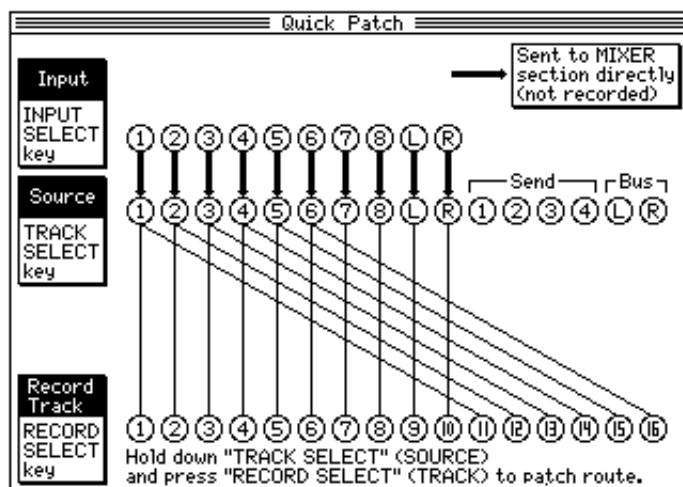


►NOTE : If you erase the patch, you will not be able to monitor or record input signals from the INPUT jacks and DIGITAL IN jack until you create a new patch.

■ Initializing the patch

To reset the patch in Quick Patch mode to its default setting, press the [F6] (DEFAULT) key on the Quick Patch screen.

The patch is reset to the default setting, as shown below.

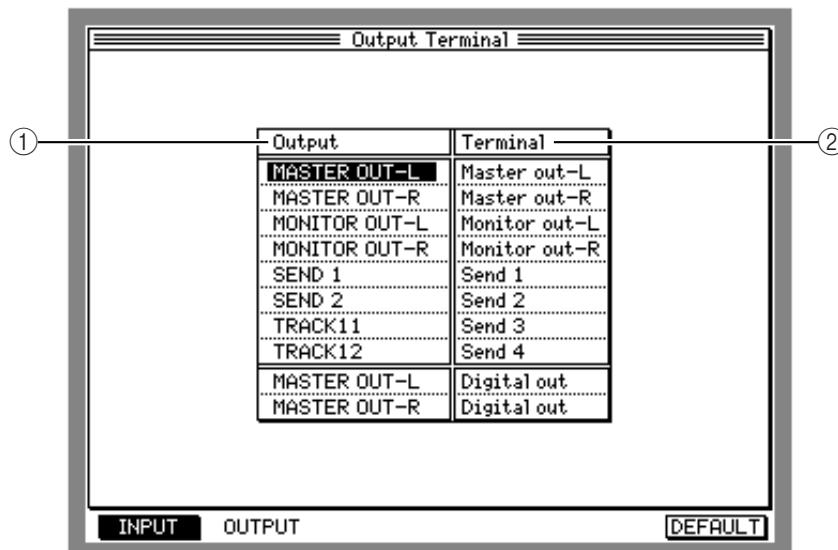


Selecting output signals

You can select any signal output from the MASTER OUT jacks, AUX SEND 1–4 jacks, and DIGITAL OUT jack in Quick Patch mode.

1. While the DPS16 is in Quick Patch mode, press the [F2] (OUTPUT) key.

The following Output Terminal screen appears, where you can assign signals to each output jack.



The Output Terminal screen shows the following information.

① Output

This field enables you to select output signals from the following options.

- MASTER OUT-L/R Signal output from MASTER bus L/R
- MONITOR OUT-L/R Signal output from the MONITOR OUT-L/R
- SEND 1–4 Signal output from AUX buses 1–4
- TRACK 1–16 Direct output signal from physical tracks 1–16
- Bus L/R Output signals from the ping-pong bus L/R

② Terminal

Indicates the output jacks of the DPS16.

2. Use the [CURSOR] key to move the cursor to the Output field you wish to edit.

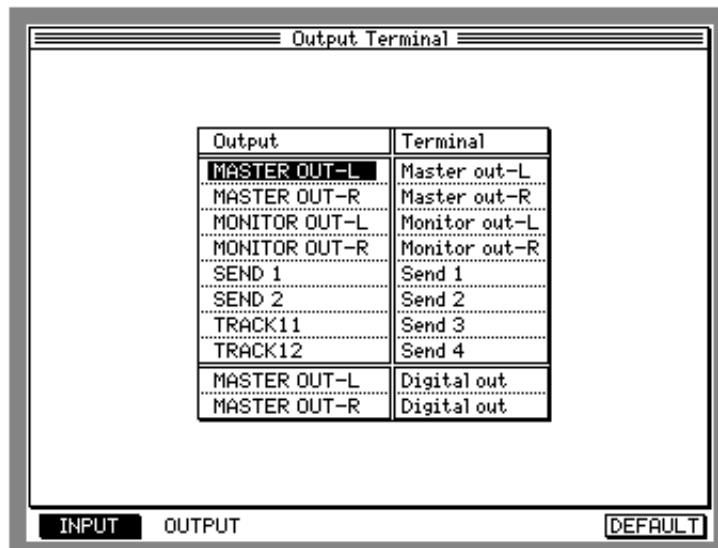
3. Turn the [JOG] wheel to select a type of output signal.

Resetting the output signal assignment to the default setting

Reset the output signal assignment to the default setting as follows.

1. While the DPS16 is in Quick Patch mode, access the Output Terminal screen and press the [F6](DEFAULT) key.

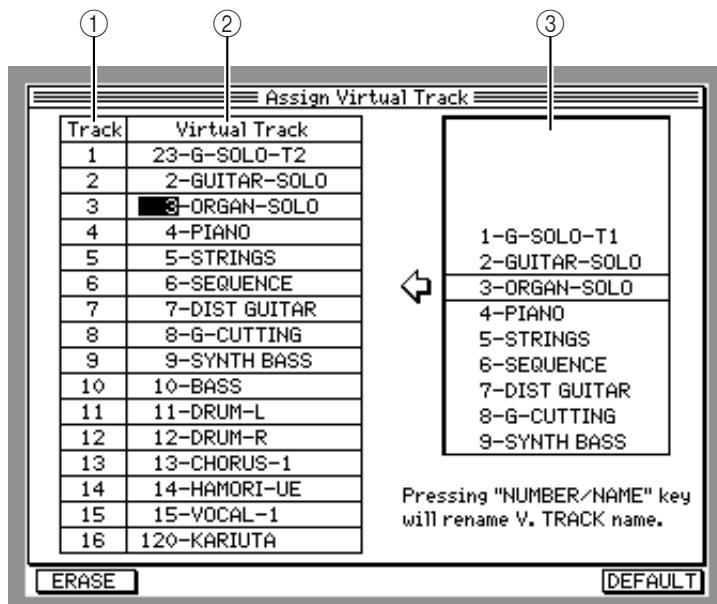
The output signal assignment is reset as follows.



Main V. Track mode screen

The DPS16 offers two types of tracks: physical tracks and virtual tracks. Virtual tracks are used to store audio data. Unless you assign them to physical tracks, you cannot record or edit in virtual tracks. In V. Track mode, you can assign virtual tracks to physical tracks.

Press the [V.TRACK] key to display the following Assign Virtual Track screen.



The Assign Virtual Track screen shows the following information.

① Track

Indicates the physical track numbers.

② Virtual Track

Indicates the virtual track number assigned to physical tracks. When the DPS16 is in default mode, virtual tracks 1–16 are assigned to physical tracks 1–16.

③ Virtual Track List

Lists the virtual tracks. Unused virtual tracks are represented by “(unused)” and recorded tracks are automatically named. (You can rename them at any time.)

Basic operations in V. Track mode

Follow the steps below to assign virtual tracks to physical tracks.

- 1. While the DPS16 is in V. Track mode, move the cursor to the physical track (1–16) field for which you wish to change the assignment.**

The currently assigned virtual track number appears in the middle of the virtual track list.

- 2. Turn the [JOG] wheel to select the desired track in the virtual track list.**

The virtual track assignment is now changed.

- 3. Press the [NUMBER/NAME] key to change the name of the selected virtual track.**

Characters may be entered.

- 4. Use the [JOG] wheel or the keys on the top panel to name the virtual track.**

Refer to page 17 for more information on how to enter characters.

- 5. When you finish renaming the track, press the [NUMBER/NAME] key.**

The entered characters are confirmed and the display returns to the screen shown in step 1.

►NOTE : Virtual tracks that are already assigned to physical tracks cannot be assigned to other physical tracks.

Resetting the virtual track assignment to the default setting

To reset the virtual track assignment to the default setting, press the [F6] (DEFAULT) key on the Assign Virtual Track screen.

Virtual tracks 1–16 are assigned to physical tracks 1–16.

Erasing data from a virtual track

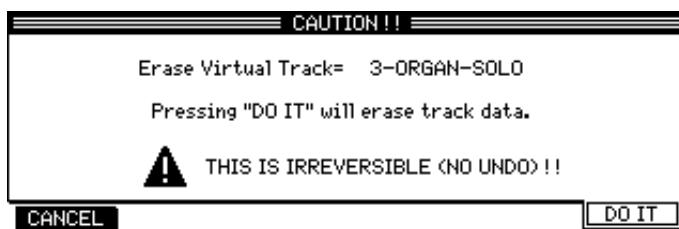
Follow the steps below to erase all data on the virtual track and change its name to “(unused).”

- 1. Select the desired virtual track. If it is assigned to a physical track, select the physical track using the cursor. If it is not assigned to any physical tracks, use the [JOG] wheel to select the virtual track to erase data from.**

- 2. Press the [F1] (ERASE) key.**

►NOTE : Once the track data is erased, it cannot be recovered (No UNDO). Use extra caution when you use this function.

The window appears, asking if you really wish to erase data.



- 3. Press the [F6] (DO IT) key to erase data.**

The virtual track data is erased and the track name is changed to “(unused)”.

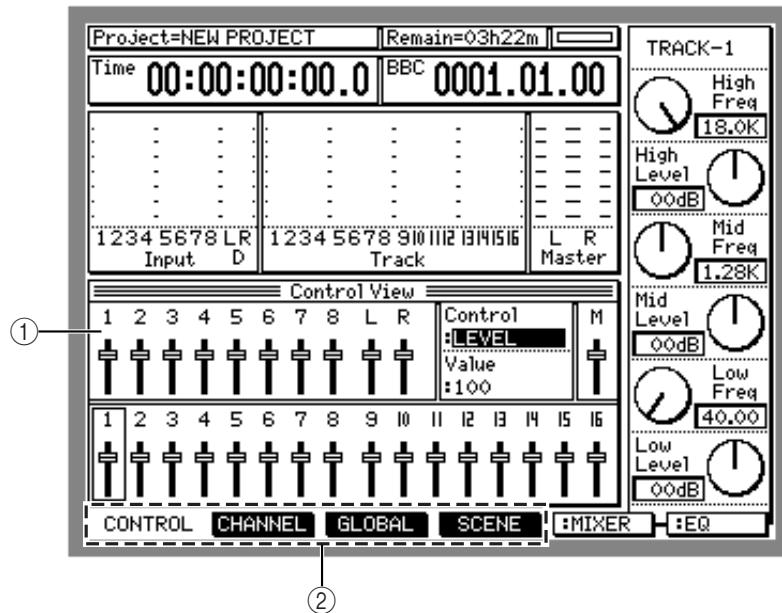
Chapter 6: Mixer Function (Mixer Mode)

This chapter describes the functions and operations in Mixer mode to set mix parameters for each channel, as well as the scene memories that store the Mixer mode settings.

Mixer mode screen

The DPS16 has an internal 26-channel (TRACK MIX channel x16, THRU MIX channel x10) digital mixer. Mixer mode is used to control mix parameters, such as the channel level, pan, EQ, AUX send 1–4, and channel on/off settings.

Pressing the [MIXER] key displays the following initial mixer screen. (You can also display this screen during recording or playback.)



This screen contains the following information.

- ① Indicates the list of mix parameters or screens depending on the currently selected function key. (The screen shown above appears when the [F1] key is pressed.)
- ② These function keys are used to access various Mixer mode pages.

The DPS16's Mixer mode is divided into the following four pages:

■ Control View page

This page indicates the currently selected mix parameters for all channels (see page 63). Press the [F1] (CONTROL) key to access this page.

■ Channel View page

This page indicates all mix parameters for the selected channels (see page 70). Press the [F2] (CHANNEL) key to access this page.

■ Global page

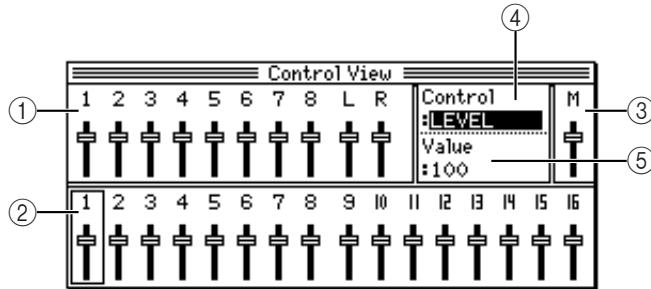
This page enables you to make settings for the entire mixer section of the DPS16 (see page 71). Press the [F3] (GLOBAL) key to access this page.

■ Scene Memory page

This page enables you to store and recall a scene that contains the mix parameter settings (see page 73). Press the [F4] (SCENE) key to access this page.

Control View page

Pressing the [F1] (CONTROL) key while holding down the [MIXER] key or while the Channel View page is displayed will access the Control View page, which displays the currently selected mix parameters for all channels.



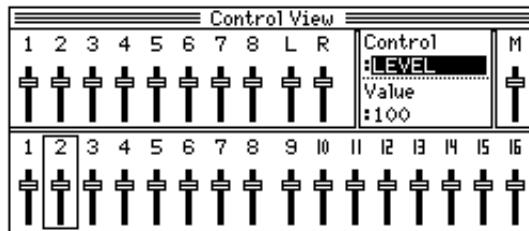
- ① This field indicates the INPUT MIX channel (1–8, DL/DR).
- ② This field indicates the TRACK MIX channel (1–16).
- ③ This field indicates the output level of the master section (MASTER bus L/R) or the master level of AUX send 1–4, only when the LEVEL parameter and SEND1 LEV – SEND4 LEV parameters are selected.
- ④ Control
This field enables you to select a mix parameter to control on the Control View page.
- ⑤ Value
This field indicates the value of the parameter to control.

Basic operation on the Control View page

Follow the steps below to access parameters on the Control View page and change the values for the desired channel.

1. Use the [INPUT SELECT] keys and [TRACK SELECT] keys on the top panel to select the target channel.
The [INPUT SELECT] keys correspond to INPUT MIX channels 1–8 and DL/DR, and the [TRACK SELECT] keys correspond to TRACK MIX channels 1–16.

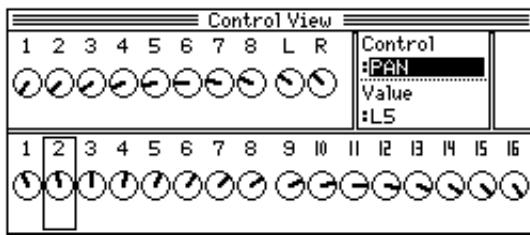
When you select the desired channel, the field for that channel is surrounded by a border.



<ex. TRACK MIX channel 2 is selected.>

TIP: You can select multiple channels by pressing multiple keys.

2. Use the [CURSOR] key to move the cursor to the Control field, and turn the [JOG] wheel to select a mix parameter.



This parameter is set to “L5” for the currently selected TRACK MIX channel 2.

3. Move the cursor to the Value field, and turn the [JOG] wheel to adjust the parameter value.

TIP : If you have selected multiple channels in step 1, the values of the corresponding channels change simultaneously. The values change while the channels maintain their ratio to each other, until one of the channels reaches a maximum or minimum value.

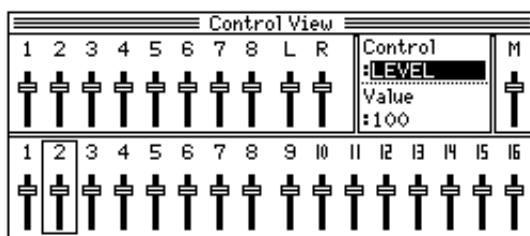
Mix parameters on the Control View page

This section presents the details of the mix parameters on the Control View page.

■ LEVEL

You can adjust the channel input level and master output level.

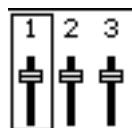
Range: 0 – 127



TIPS :

- Use the [MASTER] key to select the fields for the master section (M).
- You can also use the faders on the top panel to adjust the levels of the TRACK MIX channels and the master section. As you operate the faders, the fader graphics on the screen move accordingly.

NOTE : When you change the levels of the TRACK MIX channels and the master section using the [JOG] wheel, a square ■ appears on top of the fader graphics on the screen. This square icon means that the current fader position does not match the actual level. If you move the corresponding fader on the top panel, the level will not change until the fader passes over the current value and the square ■ disappears.

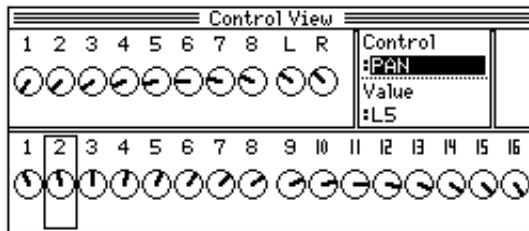


<ex. The fader position of TRACK MIX channel 1 does not match its real value.>

■ PAN

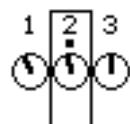
You can adjust the stereo image for the channels.

Range: R63 – 0 – L63



✓ TIP : You can also use the [PAN] controls on the top panel to adjust the pan setting for TRACK MIX channels.

►NOTE : When you change the pan setting of the TRACK MIX channels using the [JOG] wheel, a square appears on top of the knob graphic on the screen. This square icon ■ means that the current knob position does not match the actual pan setting. If you move the corresponding knob on the top panel, the pan setting will not change until the knob position passes over the current value and the square ■ disappears.

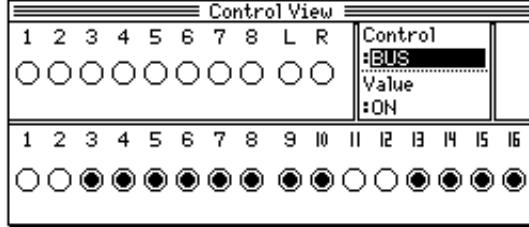


<ex. The knob position of TRACK MIX channel 2 does not match its real value.>

■ BUS

You can turn the channel signals sent to the ping-pong bus on and off.

Range: ON/OFF



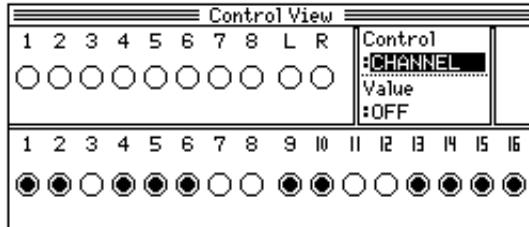
You can also use the [INPUT SELECT] keys (INPUT MIX channels) or the [TRACK SELECT] keys (TRACK MIX channels) to turn the BUS parameter on and off.

►NOTE : The ping-pong bus is a stereo bus, which is different from the master bus, and it is used to mix audio data on multiple tracks down to one or two tracks (such as for ping-pong recording). See page 81 for information on ping-pong recording.

■ CHANNEL

You can turn channel signals on and off. The off channels are muted and do not output any signal.

Range: ON/OFF



You can also use the [INPUT SELECT] keys (INPUT MIX channels) or the [TRACK SELECT] keys (TRACK MIX channels) to turn the channels on and off.

■ S1 ROUTE – S4 ROUTE (Send 1–4 routing)

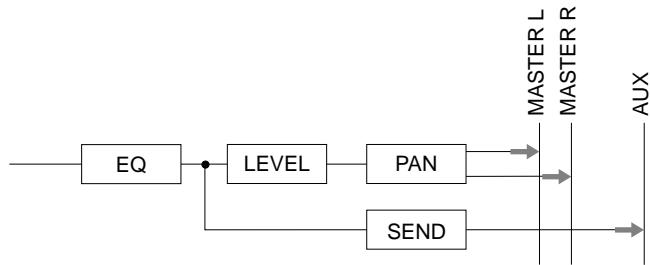
You can select how the signals of each channel are sent to AUX send 1–4 or the internal effects (FX 1–4).

Range: PRE/POST/INSERT

The parameter settings are as follows:

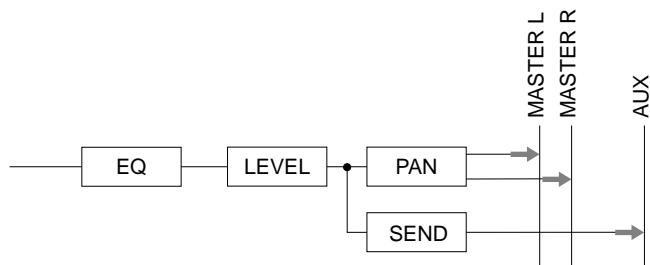
- **PRE (pre-fader)**

Signals are routed to AUX send 1–4 (or FX 1–4) before they pass the faders (LEVEL parameter). Since the fader settings do not affect this signal routing and level, this setting is useful when you need only the effect signals (such as chorus and reverb).



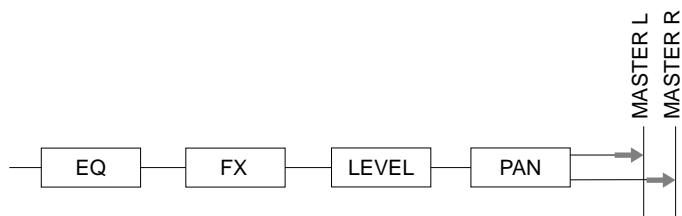
- **POST (post-fader)**

Signals are routed to AUX send 1–4 (or FX 1–4) after they pass the faders (LEVEL parameter). With this setting, the fader setting and the send level are interlocked.



- **INSERT (insert)**

This setting enables you to insert the internal effects (FX 1–4) after the EQ. This setting is useful when you wish to apply an effect (such as compressor which processes the original sound directly) to particular input signals or tracks.

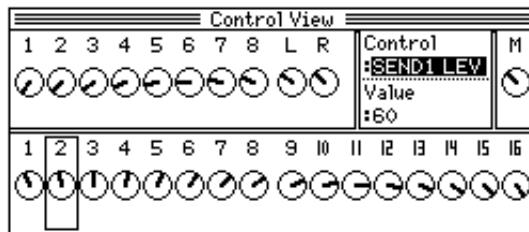


►NOTE : You can insert an effect into only one channel for each send. If you specify any one of the channels to insert an effect, you will not be able to use the send function on other channels. For example, if you select INSERT for INPUT MIX channel 1 with Send 1, Send 1 will be used only for INPUT MIX channel 1, and cannot be used by other channels.

■ SEND1 LEV – SEND4 LEV (Send level 1–4)

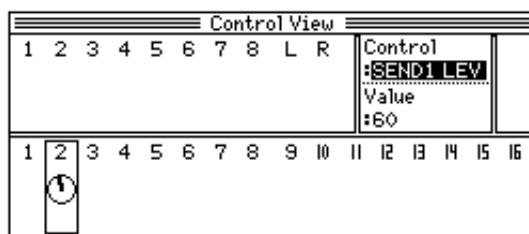
You can set the level of channel signals sent to AUX send 1–4 and the master level of AUX send 1–4.

Range: 0 – 127



// TIPS :

- Use the [MASTER] key to select the AUX 1–4 master (M) level fields.
- You can also use the QLMC knobs on the top panel to adjust the send level. See page 76 for more information.

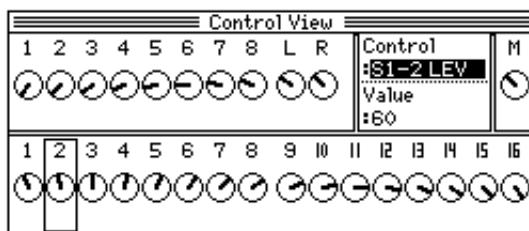


■ S1–2 LEV, S3–4 LEV/S1–2 PAN, S3–4 PAN

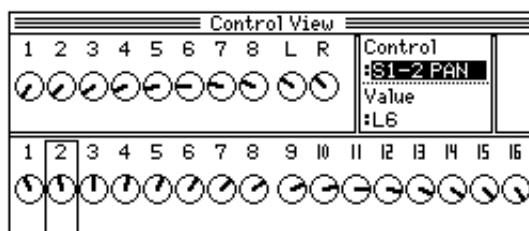
If AUX send 1–2 or 3–4 is set to “STEREO” in the *Send type* field on the Global Settings page, you can use two sends as a stereo send.

For example, if AUX send 1–2 is set to “STEREO”, the SEND1 LEV and SEND2 LEV screens are changed to the screens for setting the stereo send level (S1–2 LEV) and pan (S1–2 PAN).

Stereo send level setting screen (S1–2 LEV)



Stereo send pan setting screen (S1–2 PAN)

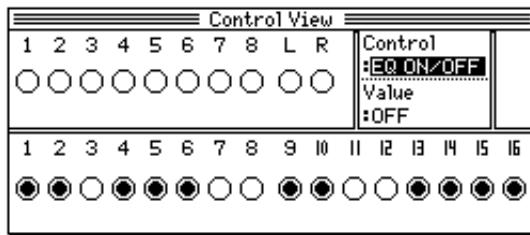


►NOTE : The number of AUX SENDs you can use simultaneously varies depending on the sampling rate setting. The number of effects you can use simultaneously is also affected in the same way. If the sampling rate is 32kHz, 44.1kHz, or 48kHz, you can use up to four AUX SENDs (and effects). If the sampling rate is 96kHz, you can use up to two AUX SENDS (and effects). For more information on the Project's sampling rate setting, see page 24 and 106.

■ EQ ON/OFF

You can turn the channel EQs on and off.

Range: ON/OFF



►NOTE : The Projects' sampling frequency setting affects the number of the EQs you can use simultaneously. If the sampling frequency is set to 32kHz, 44.1kHz, or 48kHz, you can use the EQs on up to 16 channels. If the frequency is set to 96kHz, you can use the EQs on up to 6 channels. For more information on the Project sampling frequency, see page 24 and 106.

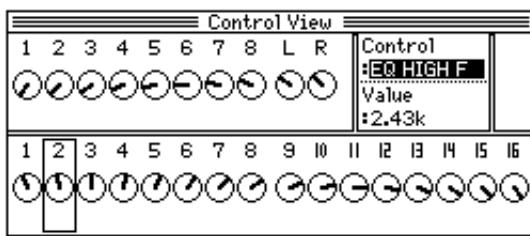
// TIPS :

- You can also use the [INPUT SELECT] keys (INPUT MIX channels) or the [TRACK SELECT] keys (TRACK MIX channels) to turn the EQs on and off.
- If you wish to apply EQ to a recording signal, use the EQ on the INPUT MIX channel that inputs the signal.

■ EQ HIGH F/EQ MID F/EQ LOW F (EQ frequency)

You can set the center frequency for each EQ band.

Range: HIGH: 500Hz–18kHz, MID: 200Hz–8kHz, LOW: 40Hz–1.5kHz

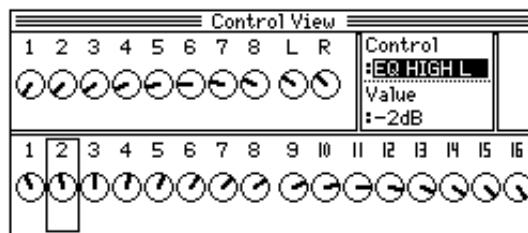


// TIP : You can also use the QLMC knobs on the top panel to control the center frequencies. See page 19 for more information.

■ EQ HIGH L/EQ MID L/EQ LOW L (EQ level)

You can set the boost and cut amounts for each EQ band.

Range: -12dB – +12dB

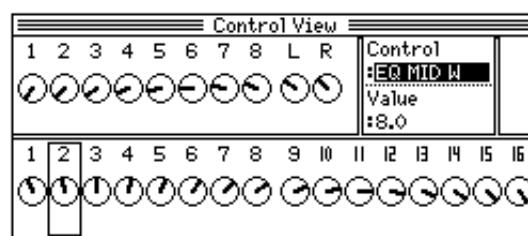


✓ TIP : You can also use the QLMC knobs on the top panel to control the boost/cut amount. See page 19 for more information.

■ EQ MID W (EQ width)

You can adjust the width of the MID EQ's boost/cut point.

Range: 0.5 – 16



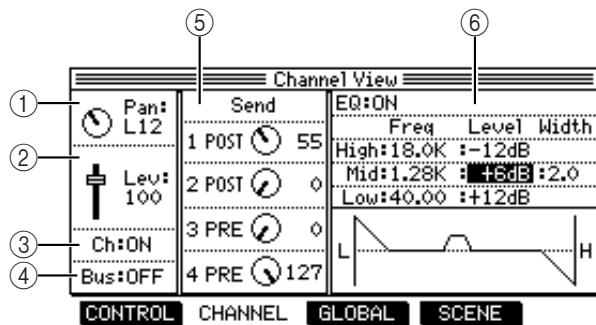
Channel View page

Pressing the [F2] (CHANNEL) key while the Control View page is displayed accesses the Channel View page, which indicates all mix parameters for the currently selected channel (or master section). This page is useful when you wish to focus on a particular channel.

After accessing the Channel View page, press the [INPUT SELECT] key (INPUT MIX channel), the [TRACK SELECT] key (TRACK MIX channel), or the [MASTER] key (master section) to select the target channel. The Channel View page looks different when the INPUT MIX or TRACK MIX channel is selected, and when the master section is selected.

■ INPUT MIX/TRACK MIX channel view

Selecting an INPUT MIX channel or TRACK MIX channel while the Channel View page is displayed will cause the following screen to be displayed. Use the [CURSOR] key to move the cursor to the desired parameter, and turn the [JOG] wheel to adjust the value.



① Pan

This field enables you to set the pan. As on the Control View page, a square ■ appears above the graphic knobs on the screen if the positions of the knobs on the top panel do not match the actual pan values of the TRACK MIX channels.

② Lev

This field enables you to set the level. As on the Control View page, a square ■ appears on top of the graphic faders on the screen if the positions of the faders on the top panel do not match the actual levels of the TRACK MIX channels.

③ Ch

This field enables you to turn the channels on and off.

④ Bus

This field enables you to turn the channel signals sent to the ping-pong bus on and off.

⑤ Send

This field enables you to select how the channel signals are sent to AUX send 1–4 or to the internal effects (FX 1–4). If any channel is set to “INS”, the AUX send setting for other channels will not appear.

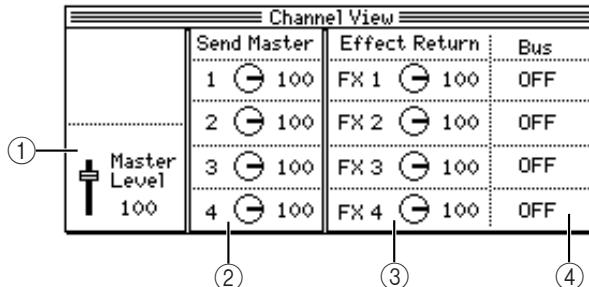
⑥ EQ

This field enables you to turn the EQ on and off and set the center frequency (Freq), the amount of boost and cut (Level), and the band width of the MID EQ (Width). The EQ curve is graphically displayed.

TIP : All settings made on the Channel View page will be reflected in the settings on the Control View page, and vice versa.

■ Master section view

If the master section is selected on the Channel View page, the following screen appears. Use the [CURSOR] key to move the cursor to the desired parameter, and turn the [JOG] wheel to adjust the value.



① Master Level

This field enables you to set the output level of the master bus. As on the Control View page, a square ■ appears on top of the graphic fader on the screen if the position of the master fader on the top panel does not match the actual level.

② Send Master

This field enables you to set the master level of each AUX send.

③ Effect Return

This field enables you to adjust the level of the return signal from the internal effect. See page 144 for more information on the internal effects.

④ Bus

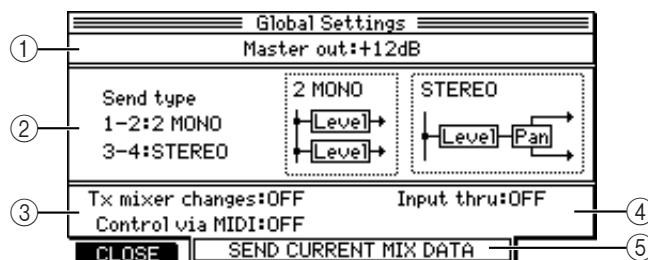
This field enables you to select whether the return signal from the internal effect is sent to the ping-pong bus.

TIP : All settings made on the Channel View page will be reflected in the settings on the Control View page, and vice versa.

Global Settings page

While the Control View page or the Channel View page is displayed, pressing the [F3] (GLOBAL) key accesses the Global Settings page, where you can set parameters which are common to the entire mixer section. You can also output the current mix parameter settings as a “snapshot” via the MIDI OUT jack.

The Global Settings page has the following information. Use the [CURSOR] key to move the cursor to the desired parameter, and turn the [JOG] wheel to change the value.



① Master out

This field enables you to select the digital output level of the DPS16 from among 0dB, +6dB, and +12dB. This setting affects the output signals from the MASTER OUT jack, the MONITOR OUT jack and the PHONES jack.

NOTE : The default gain value is 0dB. If the output level is set too high, a setting of +6dB or +12dB may cause the sound to become distorted.

(2) Send type

This field enables you to select whether the two AUX sends (1–2 or 3–4) are used as individual monaural sends or are used together as a stereo send.

(3) Control via MIDI

This field is used to set up a MIDI channel that receives MIDI data to control the mix parameters using the external MIDI data.

- 1–16 Enables you to select a MIDI receive channel.
- OFF MIDI data is not received.

(4) Tx mixer changes

This numeric field enables you to set up a MIDI channel that transmits MIDI data when the mix parameters are changed.

- 1–16 Enables you to select a MIDI transmit channel.
- OFF MIDI data is not transmitted.

(5) Input thru

This field enables you to select whether MIDI data for controlling the mixer (received at the MIDI IN connector) is output from the MIDI OUT/THRU connector.

- ON When the DPS16 receives MIDI data for controlling the mixer, it will output the same data from the MIDI OUT connector.
- OFF The DPS16 will output MIDI data only when the internal mixer parameters are changed. The DPS16 will not output MIDI data received from the external device for controlling the mixer.

►NOTE :

- *This parameter is effective only when the MIDI OUT/THRU function field is set to “OUT” on the Sync/MIDI window in Mixer mode. (see page 107) All MIDI data received at the MIDI IN connector will be output from the MIDI OUT/THRU connector regardless of this parameter setting.*
- *To record and play back the mixer operation of the DPS16 to and from the MIDI sequencer, set this parameter to “OFF”. Otherwise, the MIDI message may loop between the DPS16 and the MIDI sequencer.*

(6) [F1] (CLOSE) key

This function key is used to close the Global Settings page to return to the Channel View page.

(7) [F2]–[F4] (SEND CURRENT MIX DATA) keys

These function keys are used to output mix parameter settings (snapshot) as MIDI data.

✓ TIP : See page 139 for more information on how to record a snapshot to an external device, such as a MIDI sequencer.

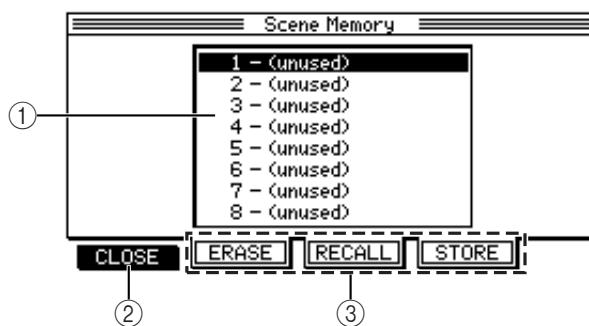
Scene Memory page

While the Control View page or the Channel View page is displayed, pressing the [F4] (SCENE) key accesses the Scene Memory page, where you can store all mix parameters in Mixer mode as a “scene” and recall stored scenes.

The following mix parameters can be stored as part of a scene.

- Channel on/off
- Channel level
- Channel pan
- Channel AUX send setting
- Channel EQ setting
- Channel signal (sent to the ping-pong bus) on/off
- Master bus output level
- Ping-pong bus output level
- AUX send master level
- Effect settings

The Scene Memory page has the following information:



① This is a list of scenes stored in the memory. Unused scenes are indicated by “(unused)”.

② [F1] (CLOSE) key

This function key is used to close the Global Settings page to return to the Channel View page.

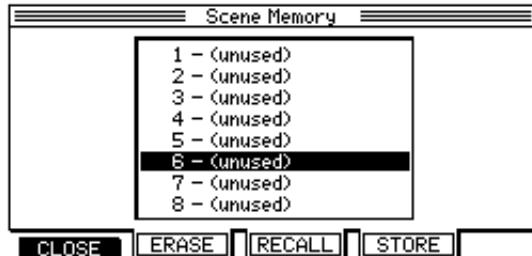
③ [F2]–[F4] keys

These function keys are used to store and recall scenes.

Basic operation on the Scene Memory page

■ Storing a scene

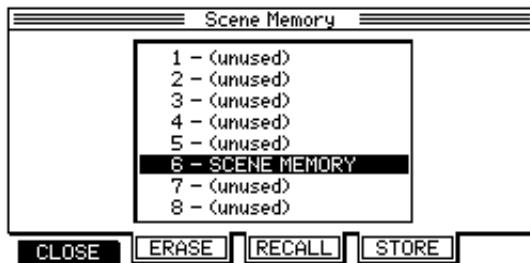
1. While the Control View page or the Channel View page is displayed in Mixer mode, press the [F4] (SCENE) key to access the Scene Memory page.
2. Use the [CURSOR] key to move the cursor to the number of the scene memory you wish to store.



ex: Scene Memory number 6 is selected.

3. Press the [F4] (STORE) key.

The current mix parameter settings are stored and the scene name changes from “(unused)” to “SCENE MEMORY”.

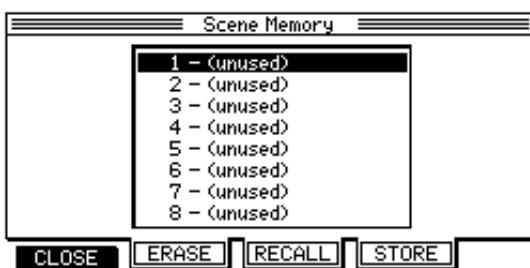


✓ TIP : You can name a scene using the [NUMBER/NAME] key after step 3, if necessary.

►NOTE : If you try to store a scene to a number which already has a stored scene, the following screen appears. If you wish to overwrite the memory, press the [F3](DO IT) key. If you wish to cancel the store operation, press the [F1](CANCEL) key.

**4. Press the [F1] (CLOSE) key to complete the scene memory operation.****■ Recalling a scene**

1. While the Control View page or the Channel View page is displayed in Mixer mode, press the [F4] (SCENE) key to recall the Scene Memory page.
2. Use the [CURSOR] key to move the cursor to the number of the scene memory you wish to recall.



ex: Scene Memory number 6 is selected.

3. Press the [F3] (RECALL) key.

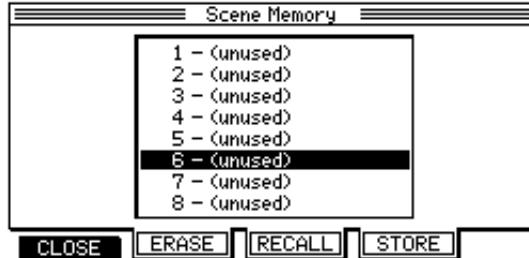
The mix parameters of the DPS16 change to the settings of the selected scene, and the Mixer mode screen appears.

►NOTE : You cannot recall the current mixer settings once you recall the scene. If you need to recall the current mixer settings, first store them as a scene.

■ Erasing a scene

1. While the Control View page or the Channel View page is displayed in Mixer mode, press the [F4] (SCENE) key to the Scene Memory page.
2. Use the [CURSOR] key to move the cursor to the number of the scene memory you wish to erase.
3. Press the [F2] (ERASE) key.

The selected scene is erased and the scene name is changed to “(unused)”.

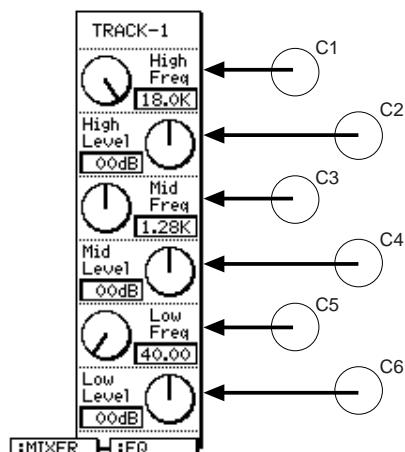


►NOTE : You cannot use the Undo function for the erase operation. Make sure that you have selected the correct scene to erase.

Controlling the mix parameters using the QLMC section

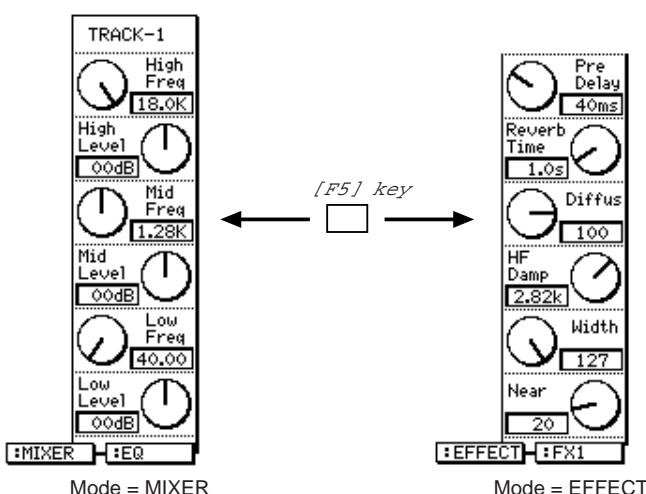
While the DPS16 displays the main screen or Mixer mode screen, the QLMC (Q-Link Mixer Control) section appears on the right of the display.

The QLMC is a function that enables you to directly control the mix parameters and effect parameters of the DPS16. The six knobs ([C1] – [C6] knobs) arrayed on the right of the display correspond to the parameters displayed on the screen, and enable you to adjust the parameters during recording or playback.



1. While the main screen or Mixer mode screen is displayed, press the [F5] key to select “MIXER” as a QLMC mode.

The QLMC has a “MIXER” mode (to control the mix parameters) and an “EFFECT” mode (to control the effect parameters).



2. Use the [INPUT SELECT] keys, [TRACK SELECT] keys, and [MASTER] key to select the desired channel.

The following keys can be used to select a channel when the QLMC mode is set to “MIXER”.

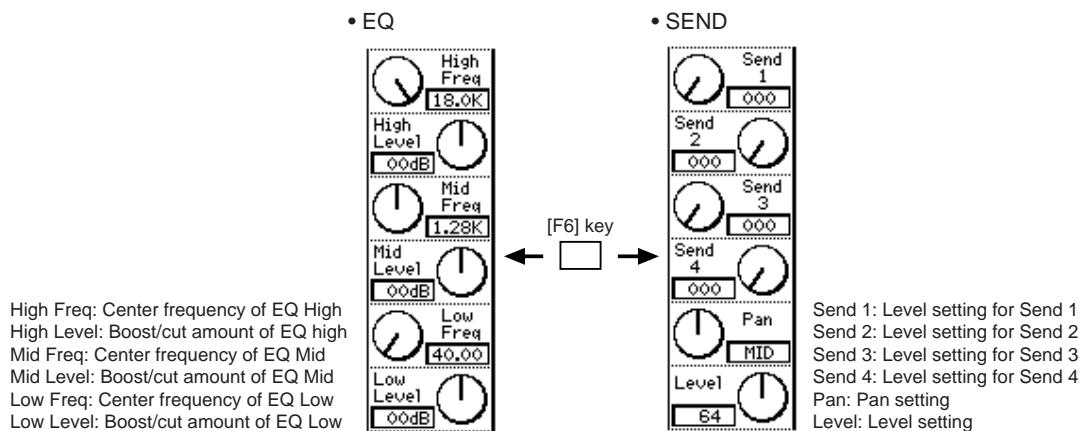
- [INPUT SELECT] keys INPUT MIX channels
- [TRACK SELECT] keys TRACK MIX channels
- [MASTER] key Master section

The currently selected channel appears on the upper part of the QLMC section of the display.

TRACK-1	A TRACK MIX channel is selected.
ANALOG-1	An INPUT MIX channel (1-8) is selected.
DIGITAL-L	An INPUT MIX channel (DL/DR) is selected.
MASTER	The master section is selected.

3. Press the [F6] key to select a mix parameter you wish to display in the QLMC section.

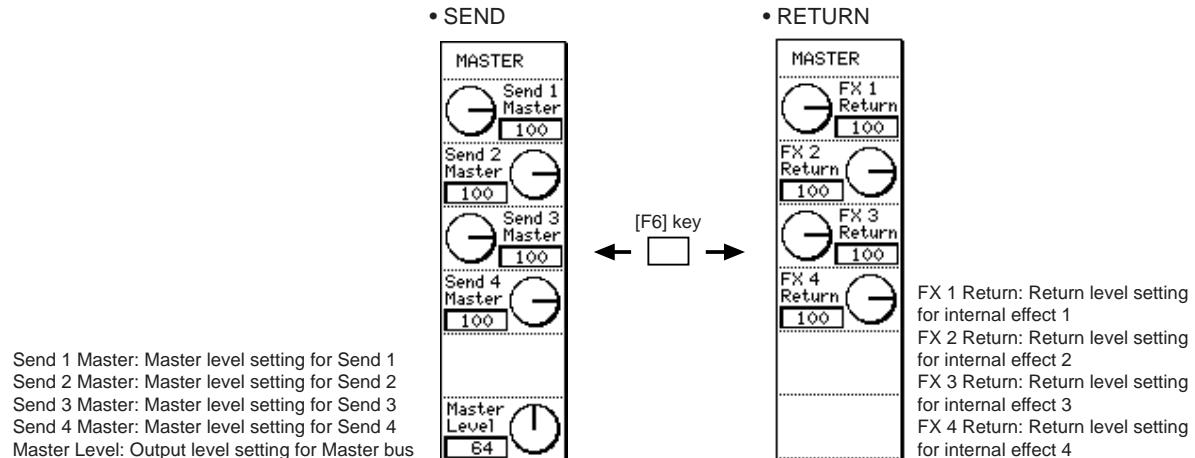
Pressing the [F6] key repeatedly changes the parameter displayed in the QLMC section as follows:



■ When INPUT MIX channels or TRACK MIX channels are selected:

- **EQ**
 High Freq: Center frequency of EQ High
 High Level: Boost/cut of EQ High
 Mid Freq: Center frequency of EQ Mid
 Mid Level: Boost/cut of EQ Mid
 Low Freq: Center frequency of EQ Low
 Low Level: Boost/cut of EQ Low

- **SEND**
 Send 1: Send 1 level
 Send 2: Send 2 level
 Send 3: Send 3 level
 Send 4: Send 4 level
 Pan: Pan setting
 Level: Level setting



■ When the master section is selected:

• SEND

Send 1 Master: Send 1 master level
 Send 2 Master: Send 2 master level
 Send 3 Master: Send 3 master level
 Send 4 Master: Send 4 master level
 Master Level: Master bus output level

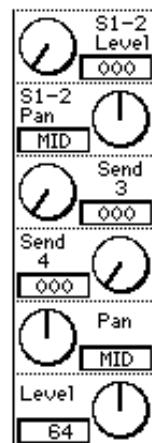
• RETURN

FX 1 Return: Internal effect 1 return level
 FX 2 Return: Internal effect 2 return level
 FX 3 Return: Internal effect 3 return level
 FX 4 Return: Internal effect 4 return level

4. Use the [C1]–[C6] knobs to adjust the target mix parameters.

✓ TIP : The mix parameter settings changed via the QLMC are reflected on each page of Mixer mode, and vice versa.

►NOTE : If the Send Type field on the Global Settings page in Mixer mode (see page 71) is set to “STEREO”, the SEND indication changes. For example, if you set Send 1–2 to “STEREO”, the indication changes as follows:



Chapter 7: Advanced Technique for Mixing

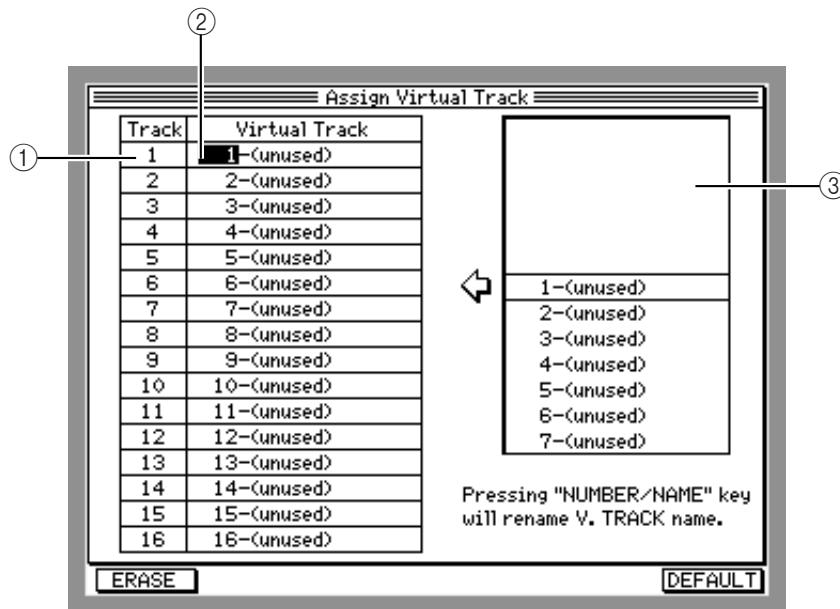
The DPS16 is designed for ease of operation from recording to mixdown, similar to a cassette multitrack recorder. It also enables you to combine various functions for more advanced mixing operations. This chapter introduces advanced techniques for mixing with the DPS16.

Assigning virtual tracks to physical tracks

The DPS16 provides 250 virtual tracks for sixteen physical tracks. You cannot directly control the virtual tracks, but you can record, play, and edit them by assigning them to the physical tracks. For example, if you record each take in several virtual tracks for overdubbing a given part, you can select the best take for mixdown later. This section explains how to record multiple takes of a guitar solo while switching the virtual tracks assigned to physical tracks.

1. Press the [V. TRACK] key.

The DPS16 enters V. Track mode where you can assign virtual tracks to physical tracks and displays the following Assign Virtual Track screen.



① Track

This field indicates a physical track number.

② Virtual Track

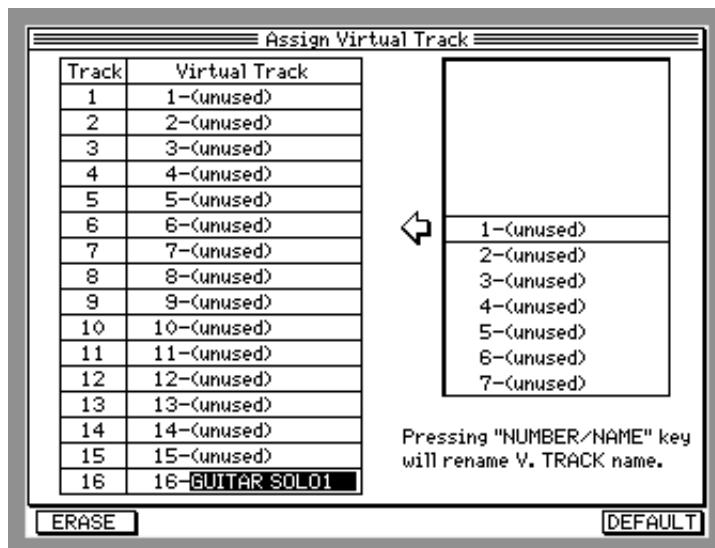
This field indicates the number and name of the virtual track assigned to the physical track.

③ Virtual Track List

Lists virtual tracks. Unused virtual tracks are expressed by “(unused)”. Used tracks are automatically named. (The name can be modified later.)

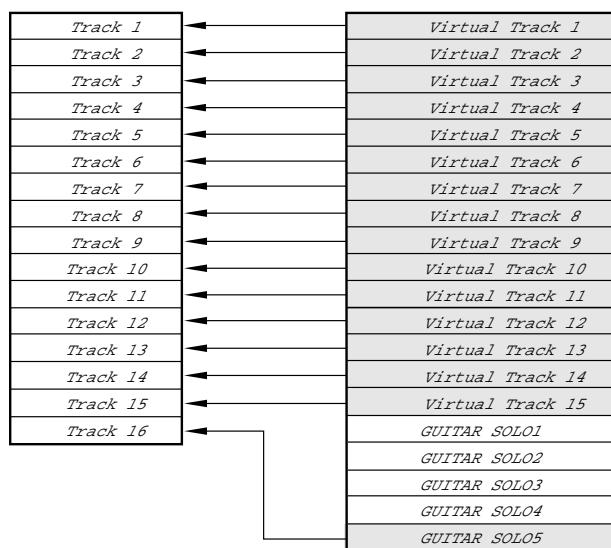
2. Move the cursor to the field for track 16, then press the [NUMBER/NAME] key and name this virtual track "GUITAR SOLO1".

Refer to page 17 for how to enter characters.

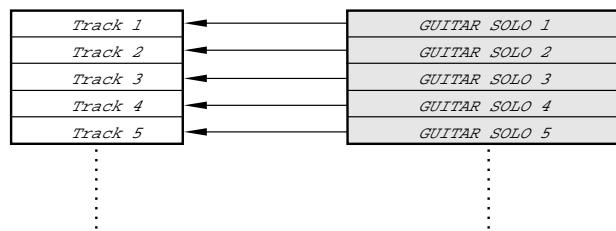


3. Return to the Main screen and record the first guitar solo take to Track 16.
4. Press the [V. TRACK] key.
5. Move the cursor to the track number field 16.
6. Turn the [JOG] wheel to select an unused virtual track (indicated as (unused)) and assign it to track 16.
7. Follow step 2 to name a new virtual track "GUITAR SOLO2".
8. Repeat steps 3-7 to record several takes.

Even if you change the virtual track assigned to a physical track, the previous virtual track remains on the disk, and you can assign it to any physical track and select the best take for mixdown.



You can also assign these recorded virtual tracks to multiple physical tracks.



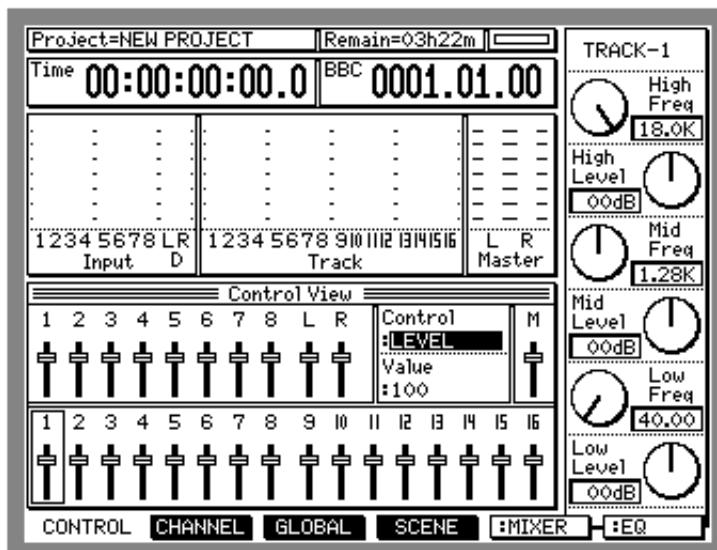
In this way, you can use the edit commands (such as COPY → OVERWRITE) to extract only good parts and assign them to one track. For more information, refer to “Chapter 8, Audio Data Editing (Edit Mode).”

Ping-pong recording

A “ping-pong recording” is an operation that enables you to mix multiple tracks and record the mix onto another track. After ping-pong recording, extra tracks (that were used before) become available for overdubbing other parts. The DPS16 performs ping-pong recording within the digital domain. The following section explains how to mix the signals of physical tracks 1–14 into stereo and ping-pong recording to physical track 15 and 16.

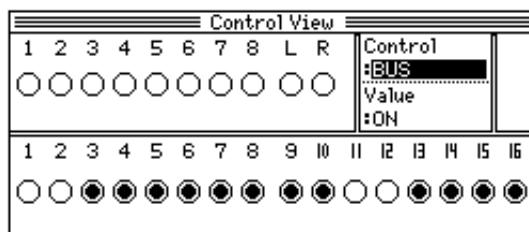
1. Press the [MIXER] key.

The DPS16 enters Mixer mode and displays the Control View page.

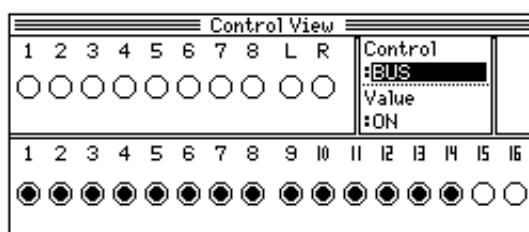


2. Move the cursor to the Control field and turn the [JOG] wheel to select the “BUS” mix parameter.

“BUS” is a mix parameter that enables you to turn on and off the channel signal routed to the ping-pong bus. The “ping-pong bus” is a special bus that is independent of Master bus L/R, and it is used to mix INPUT MIX channel signals or TRACK MIX channel signals into two channels. When you select the BUS parameter in the Control View page, you can specify whether or not each channel is sent to the ping-pong bus.



3. Set the BUS parameter for TRACK MIX channels 1–14 to on, and set the BUS parameter for other channels to off.

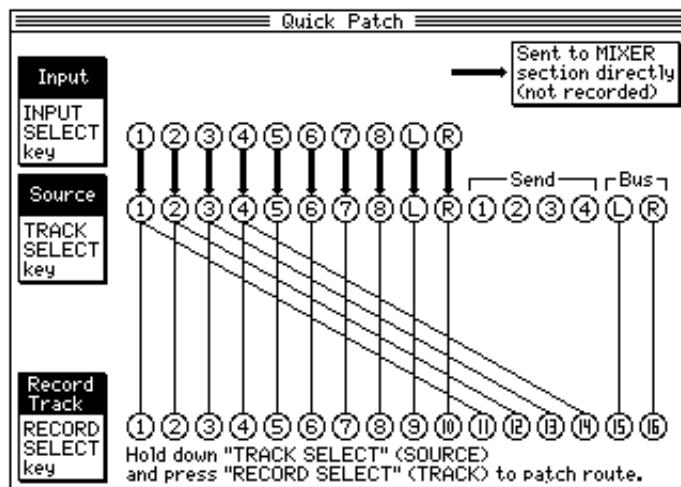


✓ TIP : [TRACK SELECT] keys 1–14 enable you to switch this parameter on and off very quickly.

4. Press the [PATCH] key.

The DPS16 enters Quick Patch mode. In this mode, you need to change the patch (connection) so that the output signal from the ping-pong bus will be sent to track 15 and 16.

5. On the Quick Patch screen, route the Bus L/R signals in the source section to track 15 and 16 in the record track section as shown below.



Now, ping-pong bus L/R (stereo mix of TRACK MIX channels 1–14) is selected as the recording source for TRACK MIX channel 15 and 16.

6. Press the [MAIN SCREEN] key to return to the Main screen.
7. Press [RECORD SELECT] keys 15 and 16 to place tracks 15 and 16 in record-ready mode.
[RECORD SELECT] keys 15 and 16 flash in red and the input source of tracks 15 and 16 (ping-pong bus signal – mixed signals of TRACK MIX channels 1–14) is output from the MASTER OUT and MONITOR OUT jacks.
8. Raise the master fader up to the = mark.
The proper level cannot be monitored when the 15/16 channel faders are raised up at this time, since the bus sound are mixed together.
9. While playing the DPS16, use [TRACK PAN] knobs 1–14 and channel faders 1–14 to adjust the pans and levels of TRACK MIX channels 1–14.
The channel signals sent to the ping-pong bus are affected by the channel fader and the [TRACK PAN] knob setting. If necessary, set other mix parameters, such as EQ, in Mixer mode.

10. Start recording on the DPS16.

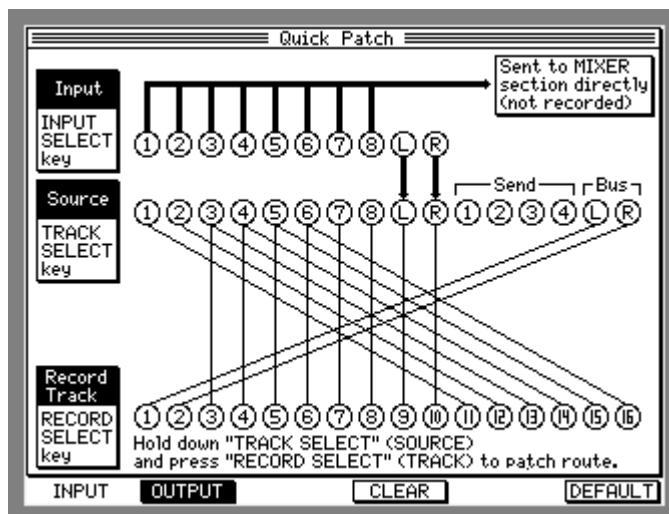
The signals of TRACK MIX channels 1–14 are recorded via the ping-pong bus to track 15 and 16. When recording is complete, you can assign unused virtual tracks to physical tracks 1–14 to record more parts. If you keep the original recording (the material originally recorded prior to ping-pong recording), you can redo ping-pong recording at any time.

✓ TIP: You can also perform ping-pong recording while applying the internal effects. For more information, refer to “Using effects during ping-pong recording” in Chapter 13.

Mixing and recording several input signals

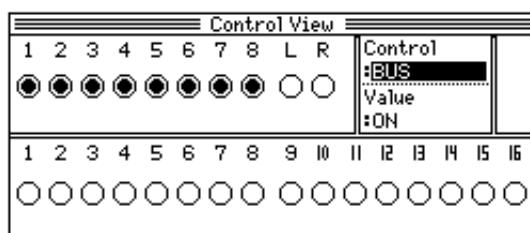
On the DPS16, you can assign input channels (INPUT jacks 1–8, DIGITAL IN jack) to physical tracks. However, you may sometimes wish to mix multiple input sources to record them onto tracks 1–2 using the ping-pong bus. For example, it is useful if you can feed individual instrument sounds from the individual out jacks of a rhythm machine or a sampler into the DPS16, then mix them in stereo with appropriate pan and level settings, and record the stereo mix to two tracks. In the following example, we feed rhythm machine sound sources to INPUT jacks 1–8, mix them into stereo, and record the mixed signals onto tracks 1 and 2.

- 1. Connect the individual outputs of the rhythm machine to INPUT jacks 1–8 of the DPS16.**
- 2. Press the [PATCH] key.**
The DPS16 enters Quick Patch mode. Here, you need to set the routing so that the input signals 1–8 are routed directly to the INPUT MIX channels in the mixer section.
- 3. Set the routing on the Quick Patch screen so that the input 1–8 signals are sent to the mixer section. Route the Bus L/R signals in the source section to tracks 1 and 2 in the Record Track section.**



Now, the input 1–8 signals are sent to the INPUT MIX channels in the mixer section, and ping-pong bus L/R is selected as the recording source for TRACK MIX channels 1 and 2.

- 4. Press the [MIXER] key to access Mixer mode.**
The DPS16 displays the Control View page.
- 5. Move the cursor to the Control field and turn the [JOG] wheel to select the “BUS” mix parameter.**
- 6. Set the BUS parameter for INPUT MIX channels 1–8 to on, and set the BUS parameter for other channels to off.**



- 7. Press the [MAIN SCREEN] key to return to the Main screen.**
- 8. Press [RECORD SELECT] keys 1 and 2 to place tracks 1 and 2 in record-ready mode.**
[RECORD SELECT] keys 1 and 2 flashes in red and the input source of tracks 1 and 2 (ping-pong bus signal - mixed signals of INPUT MIX channels 1–8) is output from the MASTER OUT and MONITOR OUT jacks.

9. Raise the master fader up to the = mark.

The proper level cannot be monitored when the 1/2 channel faders are raised up at this time, since the bus sound are mixed together.

10. Press the [MIXER] key to place the DPS16 in Mixer mode, and while playing the rhythm machine, adjust the pan, EQ, and level of INPUT MIX channels 1–8.

✓ TIP : Check the output level from the ping-pong bus using the level meter for TRACK MIX channels 1 and 2.

11. Start recording on the DPS16.

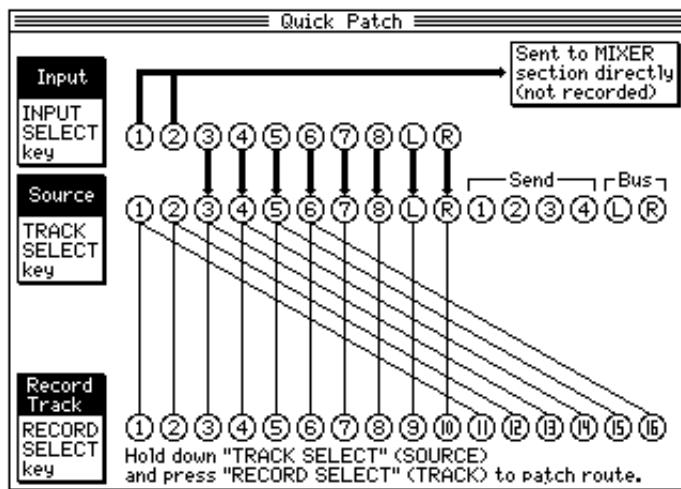
Input 1–8 signals are recorded to tracks 1 and 2 via the INPUT MIX channels 1–8 through the ping-pong bus.

✓ TIP : You can also insert the internal effects to any channel. For more information, refer to “Using effects during ping-pong recording” in Chapter 13.

Adding sounds during mixdown

The DPS16 is capable of playing back up to sixteen physical tracks via the TRACK MIX channels in the mixer section. Send signals from INPUT jacks 1–8 and/or the DIGITAL IN jack to the Master section to mix with TRACK MIX channel signals. For example, if you have a MIDI sequencer synchronized with the DPS16, you can mix signals from synthesizers or samplers. This section explains how to add more synthesizer signals from INPUT jacks 1 and 2 during mixdown. (See page 132 for more information on synchronizing a MIDI sequencer to the DPS16.)

1. Connect the synthesizer to INPUT jacks 1 and 2, and use [INPUT TRIM] knobs 1 and 2 to adjust the input levels.
2. Place the DPS16 in Quick Patch mode and set it so that Inputs 1 and 2 signals are sent to the mixer section.



Now, the synthesizer signal routed to the INPUT jacks 1 and 2 is sent to the Master section and mixed with signals on TRACK MIX channels 1–16, and output from the MASTER OUT and DIGITAL OUT jacks.

3. Press the [MIXER] key to place the DPS16 in Mixer mode.
4. While playing the DPS16 and the MIDI sequencer in sync, set the level, pan, and EQ parameters for TRACK MIX channels 1–16 and INPUT MIX channels 1 and 2.
5. Start recording on the master recorder for mixdown.

TIP : You can also insert the internal effects to any channels. For more information, refer to “Using effects during ping-pong recording” in Chapter 13.

Using the Solo and Mute functions

The DPS16 provides a Solo function that allows specified channels to be routed to MONITOR OUT jacks, and a Mute function that allows specified channels to be muted. The Solo function is useful when you wish to monitor only certain channels without affecting the signals output from the MASTER OUT jacks and the DIGITAL OUT jack. The Mute function is used to turn on and off the sound of only certain channels output from the MASTER OUT and DIGITAL OUT jacks.

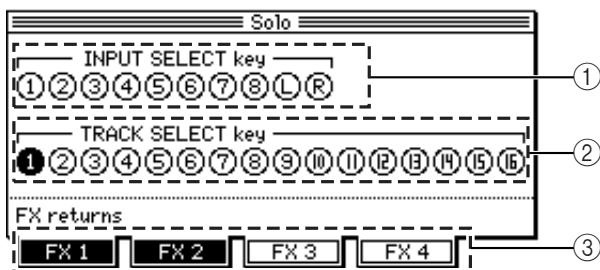
Both functions are available whenever the transport operations on the DPS16 are available (that is, in Main mode or in Mixer mode).

TIP : The Solo function is effective only on the monitor out signals. On the other hand, the Mute function is effective on the master out, digital out, and monitor out signals.

Solo function

1. Press the [SOLO] key to access the Solo function.

The [SOLO] key flashes, indicating that the Solo function is available. The DPS16 displays the Solo window that indicates the solo condition of each channel.



- ① Indicates the solo on/off condition for the INPUT MIX channels. (The “on” channels are highlighted.) Use the [INPUT SELECT] keys to turn Solo mode for the INPUT MIX channels on and off.
- ② Indicates the solo on/off condition for the TRACK MIX channels. (The “on” channels are highlighted.) Use the [TRACK SELECT] keys to turn Solo mode for the TRACK MIX channels on and off.
- ③ [F1] (FX1) key – [F4] (FX4) key
These keys are used to turn Solo mode for effect returns 1–4 on and off. (The default setting is “on” for all returns.)

2. Use the [INPUT SELECT] keys, [TRACK SELECT] keys, [F1](FX1) – [F4] (FX4) keys to turn Solo mode for each channel on and off. (You can turn Solo mode for multiple channels on simultaneously.)

While the [SOLO] key is flashing, only the signals of the solo channels will be output from the MONITOR OUT and PHONES jacks. This setting does not affect the signals output from the MASTER OUT and DIGITAL OUT jacks. This function is useful when you wish to monitor certain tracks through the monitor system or headphones during mixdown or ping-pong recording.

3. Press the [SOLO] key again to exit the Solo function.

The DPS16 returns to the previous status.

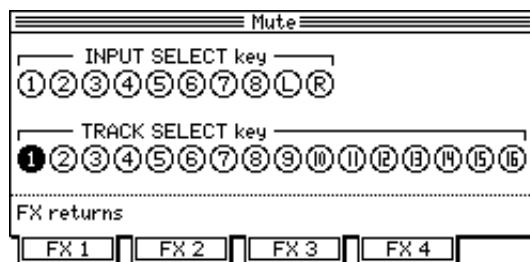
TIPS :

- The DPS16 memorizes the solo channels you select during the Solo operation and retains them until the power to the unit is turned off. When you turn on the Solo function, the same channels are automatically selected.
- You can use the Solo function in Mixer mode or Effect mode. When you press the [SOLO] key in Mixer mode or Effect mode, the Solo function is turned on and the key's LED flashes. However, if you activate the Solo function while any screen other than the Main screen is displayed, the Solo window does not appear. In this case, the Solo function is effective on the channels that were previously selected as solo channels.
If you wish to change the solo channels, press the [MAIN SCREEN] key to return to the Main screen, then while the Solo window is displayed, use the [INPUT SELECT] keys, [TRACK SELECT] keys, and [F1] (FX 1) – [F4] (FX 4) keys.

Mute function

1. Press the [MUTE] key to access the Mute function.

The [MUTE] key flashes, indicating that the Mute function is available.



2. Use the [INPUT SELECT] keys, [TRACK SELECT] keys, and [F1](FX1) – [F4] (FX4) keys to mute the desired channels. (You can mute multiple channels simultaneously.)

While the [MUTE] key is flashing, the signals of the mute channels will not be output to the Master bus or ping-pong bus. (This setting affects the output signals from the MASTER OUT, DIGITAL OUT, MONITOR OUT, and PHONES jacks.) This function is useful when you wish to remove or add only certain tracks during mixdown or ping-pong recording.

3. To exit the Mute function, press the [MUTE] key again.

The DPS16 returns to the previous status.

TIPS : You can use the Mute function in Mixer mode or Effect mode. When you press the [MUTE] key in Mixer mode or Effect mode, the Mute function is turned on and the key's LED flashes. However, if you turn on the Mute function while any screen other than the Main screen is displayed, the Mute window does not appear.

If you wish to change the mute channels, press the [MAIN SCREEN] key to return to the Main screen, then while the Mute window is displayed, use the [INPUT SELECT] keys, [TRACK SELECT] keys, and [F1](FX 1) – [F4](FX 4) keys.

NOTE : You cannot use the Solo function and Mute function simultaneously. For example, if you press the [MUTE] key while the Solo function is active, the Solo function is disabled and the Mute function is enabled.

Digital input from an external device

The DIGITAL IN jack on the rear panel of the DPS16 enables you to route digital audio signals output from the digital output jacks of a connected DAT or MD recorder, CD player, or sampler into the DPS16. In this example, we will record digital audio signals output from a connected DAT recorder onto tracks 1 and 2 of the DPS16.

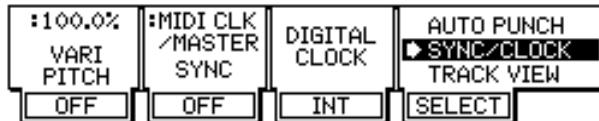
►NOTE : To transfer digital audio signals between multiple digital devices, you must set the sampling frequency and bit resolution of each device to the same values. Therefore, if you wish to record an external digital source on the DPS16, you must use the sampling frequency and bit resolution used by the digital source when you create a new Project. (For more information, refer to “Creating a new Project” on page 112.) Refer to the following table for the sampling frequency and bit resolution used by the main digital devices.

	Sampling frequency	Bit resolution
DAT recorder	32kHz, 44.1kHz, 48kHz	16 bit
MD recorder	44.1kHz	16 bit
CD player	44.1kHz	16 bit

1. Connect the digital output jack of the DAT recorder and the DIGITAL IN jack of the DPS16 using an optional coaxial cable.

✓ TIP : Use a dedicated digital audio coaxial cable for connection. If the digital output jack of the DAT recorder is optical, you will need to use an optical/coaxial converter.

2. Create a new Project that uses the sampling frequency and bit resolution of the DAT tape.
3. While the Main screen is displayed, press the [F4] (SELECT) key, then turn the [JOG] wheel to select SYNC/CLOCK as a Q-Link Function.



4. Press the [F3] key and set the DIGITAL CLOCK parameter of the SYNC/CLOCK function to “DIGI IN”.



When the DIGITAL CLOCK parameter is set to “DIGI IN”, the internal clock of the DPS16 synchronizes to the digital clock information included in the incoming digital signal.

►NOTES:

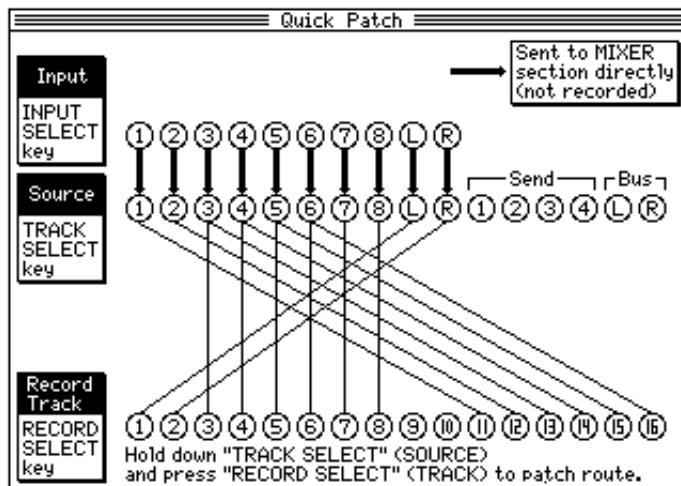
- If the DPS16 does not lock to the digital input signal, dropouts or click noise may occur.
- When DIGI IN is selected, the DPS16 functions referenced to the incoming digital signal. If the sampling frequency setting of the project differs from that of digital input signal, the time counter may not work accurately. Also, after recording, the recorded material may be played back in a wrong pitch under INT setting or when the digital input of different sampling frequency is used.
To prevent these problems, we recommend to set INT when the sampling frequency of recording signal is different from that of the project.

✓ TIP : When an error in synchronizing to the incoming digital clock is detected, the error message “Digital clock unlocked.” will be displayed. Although it continues to record, the recorded material may not be played back correctly. Therefore, we recommend to play it back and confirm the proper recording.

5. Press the [PATCH] key to return to Quick Patch mode.

- 6. On the Quick Patch screen, route the input L/R signal (from the DIGITAL IN jack) to tracks 1 and 2 of the record track section.**

The input signal from the DIGITAL IN jack is now sent to physical tracks 1 and 2.



- 7. Press the [MAIN SCREEN] key to return to the Main screen.**
- 8. Press [RECORD SELECT] keys 1 and 2 to place tracks 1 and 2 in record-ready mode and start recording.**

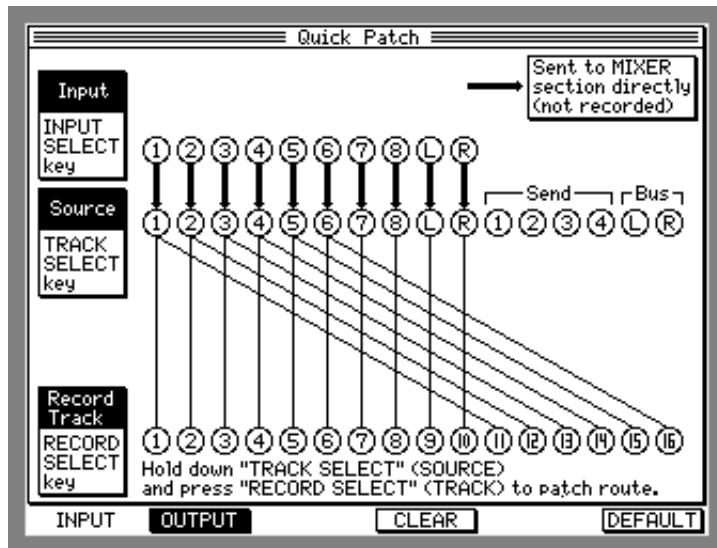
►NOTE : When you finish digital recording, reset the DIGITAL CLOCK parameter of the SYNC/CLOCK function to "INT".

Applying EQ while recording

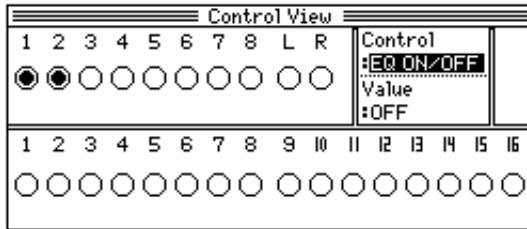
With the DPS16's default settings, signals input from the INPUT jacks are routed to the physical tracks. Normally during track recording or overdubbing, signals are recorded without being processed. After recording, you adjust the volume, pan, and tone of each track using the TRACK MIX channel faders, pan controls, and EQ controls during mixdown.

However, you can first apply EQ to input signals, then record them to the tracks. To achieve this, use the EQ controls of the INPUT MIX channels that correspond to the input jacks. In this example, EQ is applied to the input signals from INPUT jacks 1 and 2, then the signals are recorded to tracks 1 and 2.

- 1. Connect musical instruments or microphones to INPUT jacks 1 and 2, and set the input levels using the [INPUT TRIM] knobs.**
- 2. Press the [QUICK PATCH] key to place the DPS16 in Quick Patch mode, and assign INPUT 1 and 2 to physical tracks 1 and 2.**



- 3. Press the [RECORD SELECT] keys 1 and 2 to place tracks 1 and 2 in record-ready mode.**
You can now monitor the sources connected to the INPUT jacks 1 and 2.
- 4. Press the [MIXER] key to place the DPS16 in Mixer mode, and turn the EQ on for INPUT MIX channels 1 and 2.**



You can use the EQ controls for INPUT MIX channels 1 and 2 to process the input signals before they are sent to the tracks.

►NOTE : If the signal (with the EQ applied) clips, adjust the corresponding [INPUT TRIM] knob.

- 5. When you complete setting the EQ, start recording on tracks 1 and 2.**
The signals pass through the INPUT MIX channels' EQ, and are recorded to the tracks.

►NOTE :

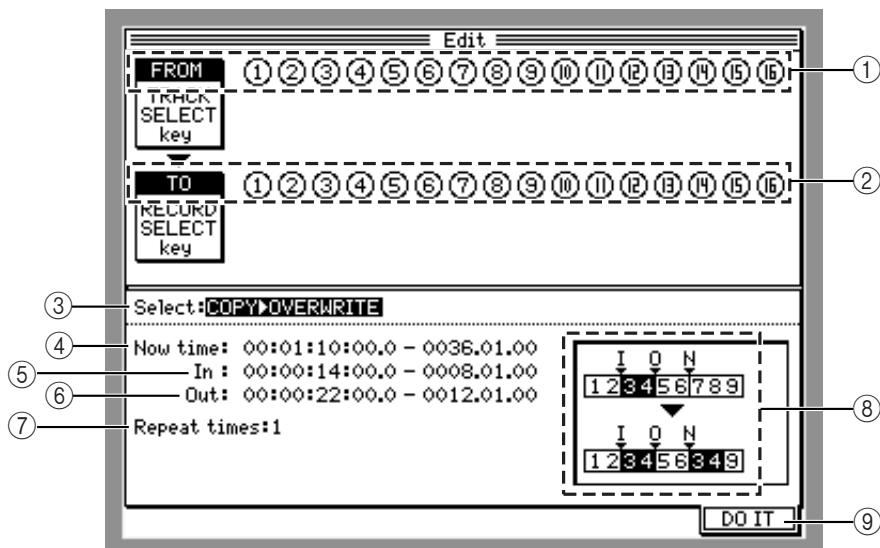
- The INPUT MIX channels' EQ setting does not affect signals that are already recorded. If you wish to adjust the tonal color of the recorded sound, use the TRACK MIX channels' EQ.
- When you finish recording, turn the INPUT MIX channels' EQ off to avoid confusion.

Chapter 8: Edit Technique (Edit Mode)

The DPS16 provides various editing capabilities in Edit mode. You can specify a range of audio data in a track to copy to a different position. You can also delete the specified portion of data. For example, you may use the same chorus or guitar phrase repeatedly, or you may move all track data to a different position to change the structure of the song. Edit mode enables you to edit audio data recorded in the tracks of the DPS16 using various methods. This chapter describes the various editing techniques available in Edit mode.

Using an Edit mode screen

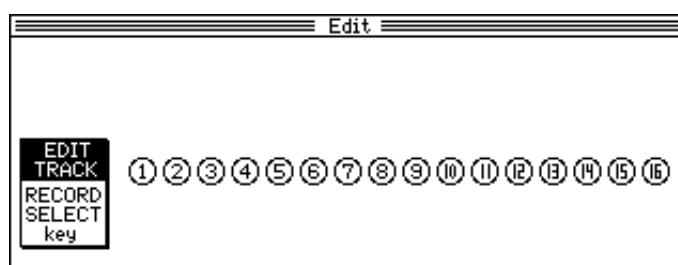
Press the [EDIT] key when the transport section is stopped. The DPS16 enters Edit mode, displaying the following EDIT screen. The Edit mode screen contains the following information:



①/② FROM track/TO track

These fields indicate “FROM track” (currently selected source track) and “TO track” (a destination track).

If you selected an edit command that functions only for certain tracks, field (②) indicates an “EDIT track” (a track to be edited).



<An example of the EDIT track indication>

③ Select

This field enables you to select a type of edit command.

④ Now Time

Data is overwritten or inserted at this time position. In Edit mode, this field indicates the current position of the transport section, but you can change the value here.

⑤/⑥ In/Out

These are fields to specify the IN/OUT points. In Edit mode, these points specify a region for the edit operation. Move the cursor to these fields to change the IN/OUT points.

⑦ Repeat times

This parameter determines the number of repeated overwrite/insert operations.

⑧ This area displays the content of the edit command by the illustration and numbers.**⑨ [F6] (DO IT) key**

This function key is used to execute the edit operations.

Basic operations in Edit mode

Follow the steps below to perform basic operations in Edit mode.

1. Store the IN point and OUT point to specify a range to edit in Main mode.

Refer to page 47 for more information on how to set the IN/OUT points.

►NOTE : This operation is not necessary for the INSERT SILENCE edit command.

2. Locate the transport position where you wish to start editing.

This becomes the time value indicated in the Now time field of the Edit screen.

►NOTE : This operation is not necessary for the CUT → DISCARD, CUT → MOVE, TIME STRETCH, STRETCH → MOVE edit commands.

3. Press the [EDIT] key.

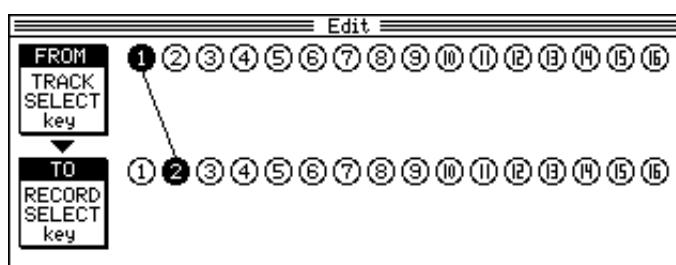
The DPS16 enters Edit mode and the Edit screen appears. Move the cursor to the Now time, In time, and Out time fields to fine-adjust the value, if necessary.

4. Move the cursor to the Select field and specify an edit command.

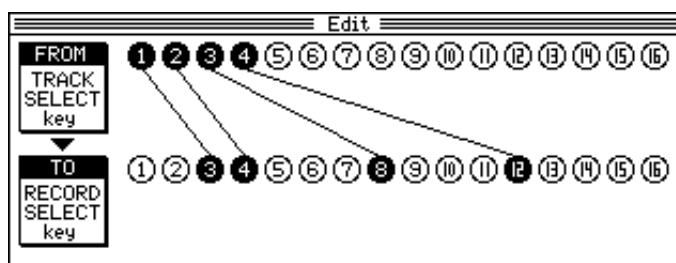
Refer to “Type and function of edit commands” on the next page for more details on edit commands.

5. Use [TRACK SELECT] keys 1–16 to select the source track to cut/copy (FROM track).**6. Use [RECORD SELECT] keys 1–16 to select the destination track to overwrite/insert (TO track).**

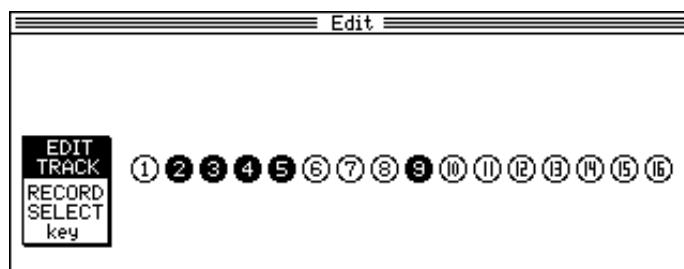
In the following example, track 1 is the FROM track and track 2 is the TO track.



✓ TIP : If you press the same key again, the corresponding FROM track or TO track is de-selected. You can also select multiple FROM tracks and TO tracks. In this case, the selected FROM tracks are assigned to the selected TO tracks in order. In the following example, FROM tracks 1, 2, 3, and 4 are assigned to TO tracks 3, 4, 8, and 12, respectively.



If you select a command that enables you to edit a single track (such as INSERT SILENCE command), use the [RECORD SELECT] keys to select a track to be edited.



7. Set the Repeat times, New length, and other parameters, if necessary.

Refer to “Type and function of edit commands” on this page for more details on edit commands.

8. Press the [F6] (DO IT) key.

The edit command is executed.

✓ TIP : You can undo the execution of edit commands using the Undo function. Refer to page 33 for more information on the Undo function.

► NOTE : If you try to execute the edit command even if the number of selected FROM tracks and the number of selected TO tracks do not match, the following error message appears. Press any key, then match the number of both tracks.

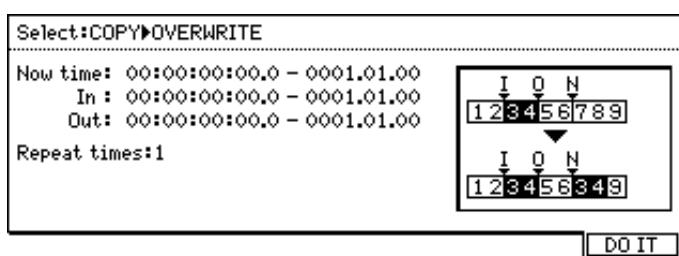
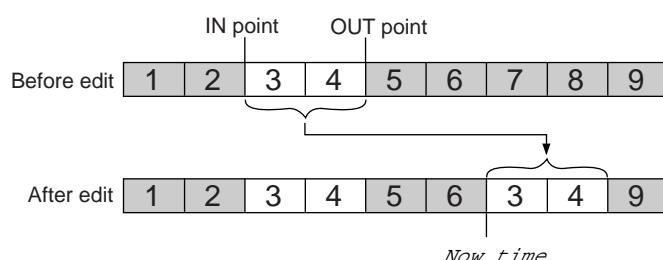


Type and function of edit commands

This section explains the type and function of edit commands.

■ COPY → OVERWRITE

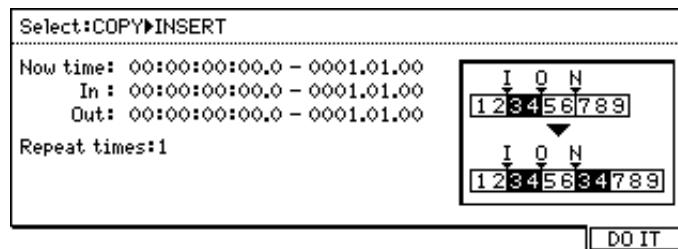
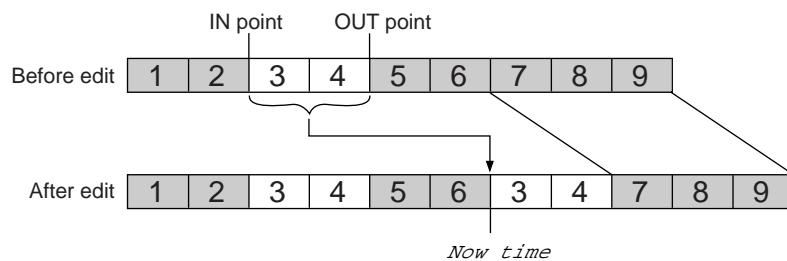
This edit command enables you to copy data between the IN and OUT points and overwrite the area that begins with the Now time. The data between the IN and OUT points remains intact, and the existing data in the destination area after the Now time is overwritten.



✓ TIP : You can repeatedly paste the copied data between the IN and OUT point. Move the cursor to the Repeat times field and turn the [JOG] wheel to specify the number of repeats.

■ COPY → INSERT

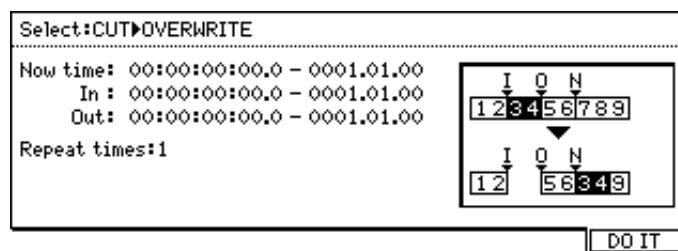
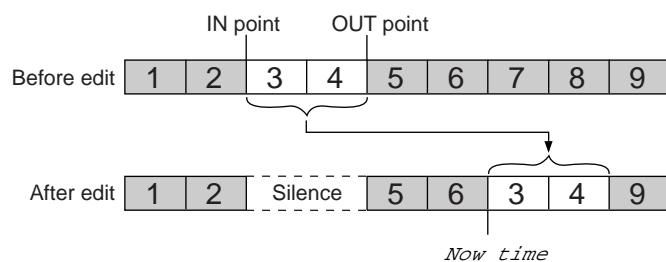
This command enables you to copy data between the IN point and OUT point and insert it after the Now time (current position). The copy source data between the IN and OUT point will remain intact, and the existing data in the destination after the Now time will move forward in time.



✓ TIP : You can repeatedly insert the copied data between the IN and OUT point. Move the cursor to the Repeat times field and turn the [JOG] wheel to specify the number of repeats.

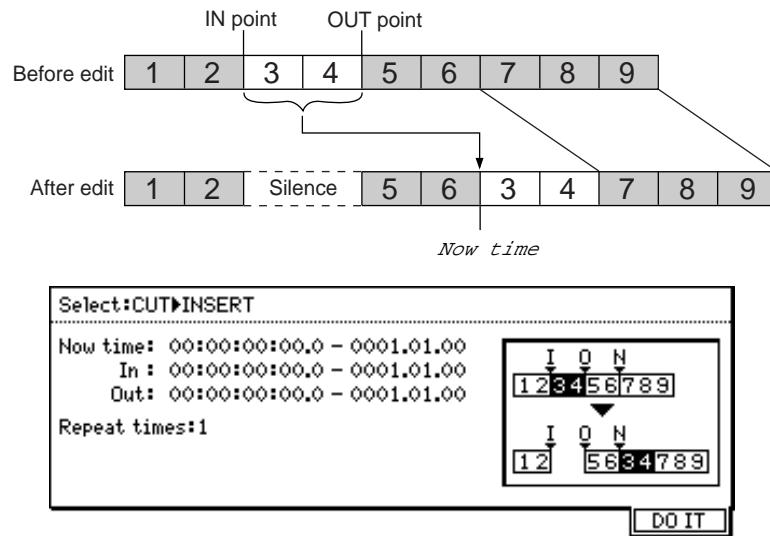
■ CUT → OVERWRITE

This command enables you to cut (delete) data between the IN point and OUT point, and paste the data after the Now time. Silence will be created between the IN and OUT point, and the existing data in the destination will be overwritten.



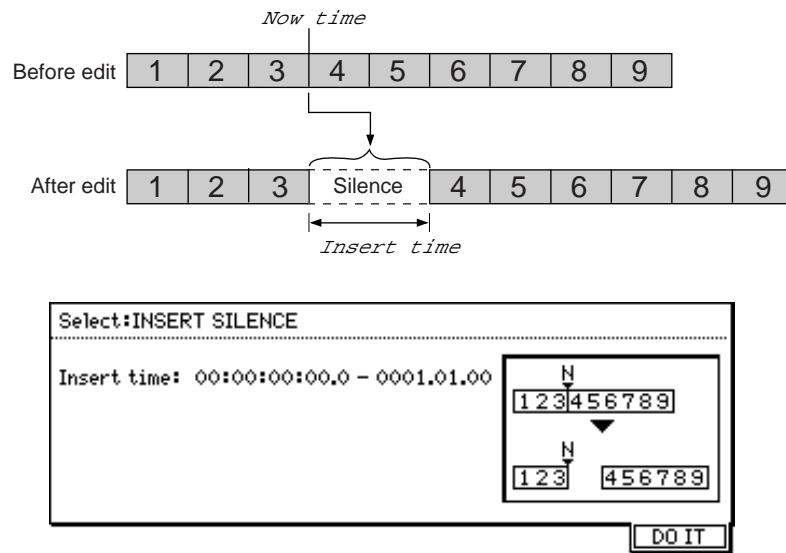
■ CUT → INSERT

This command enables you to cut data between the IN and OUT points and insert it after the Now time (current position). The source data between the IN and OUT point will be replaced with silence, and the existing data in the destination after the Now time will move forward in time.



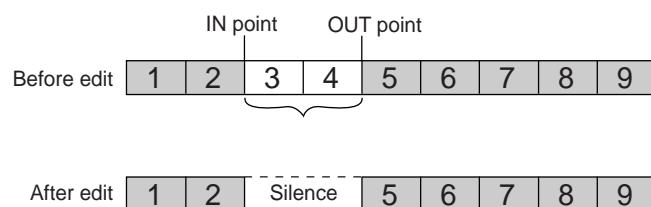
■ INSERT SILENCE

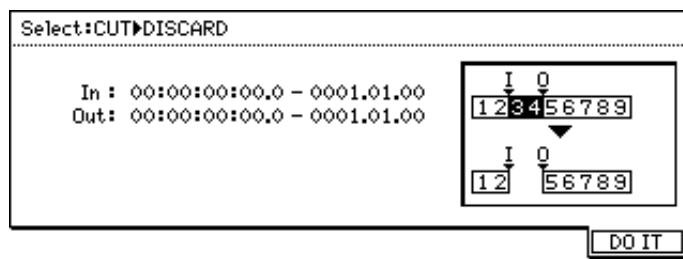
This command enables you to insert silent data after the Now time. The time duration of the silence is set in the Insert time field. The existing data after the Now time will move forward by the time duration of the inserted silence.



■ CUT → DISCARD

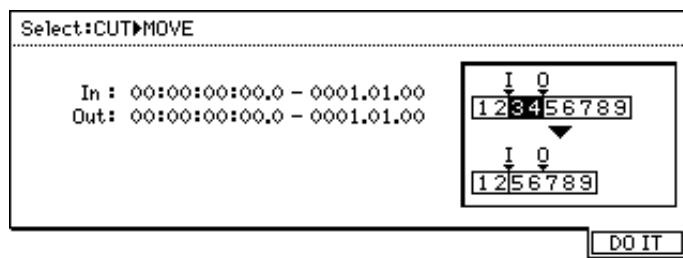
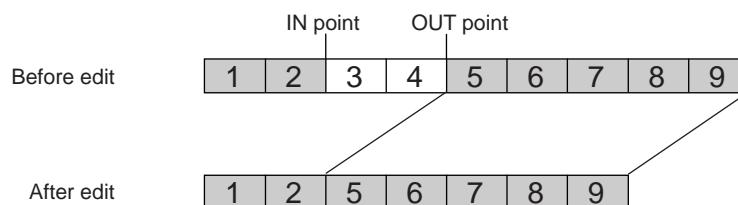
This command enables you to cut data between the IN point and OUT point. The data is deleted and replaced with a silence. The existing data after the OUT point is not affected.





■ CUT → MOVE

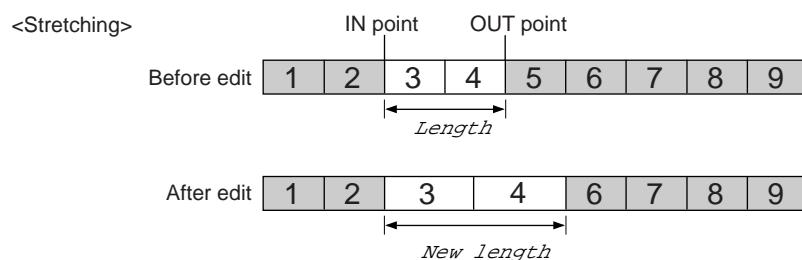
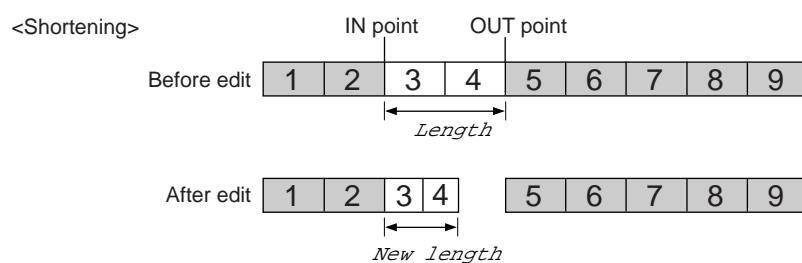
This command enables you to cut data between the IN point and OUT point. The data after the OUT point moves backward to the IN point.

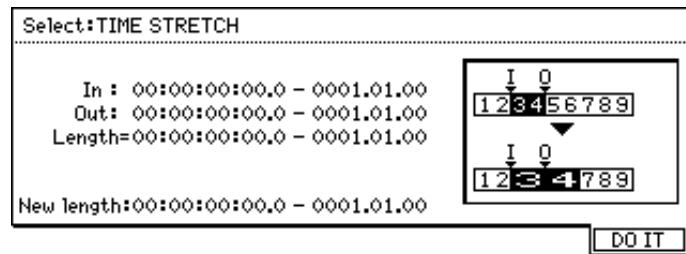


■ TIME STRETCH

This command changes the length between the IN point and the OUT point. It does not change the pitch.

When you select this command, you can access the **Length** field and the **New length** field. The **Length** field displays the current length between the IN and OUT points. Specify the desired length in the **New length** field.

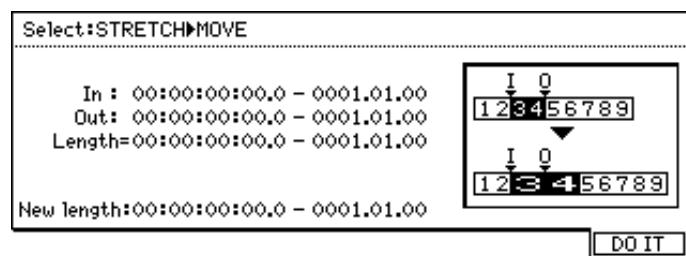
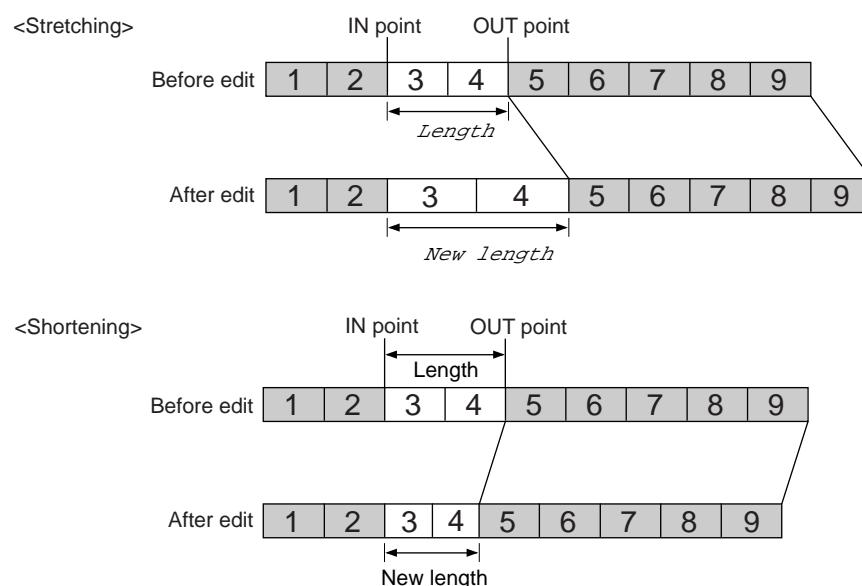




■ STRETCH → MOVE

This command changes the length between the IN point and the OUT point. It does not change the pitch. If you stretch the region, the subsequent audio data moves forward by the amount of stretch. If you shorten the region, the subsequent audio data moves backward by the amount of shortening.

When you select this command, you can access the Length field and the New length field. The Length field displays the current length between the IN and OUT points. Specify the desired length in the New length field.



Chapter 9: Various Settings (Q-Link Functions, Setup Mode)

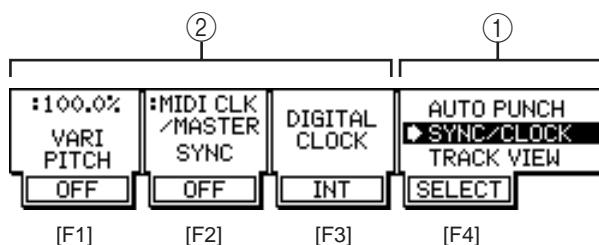
This chapter describes Q-Link functions and the operations in Setup mode used for the settings related to DPS16 operations.

Q-Link Functions

The DPS16 provides Q-Link functions that enable you to set various parameters of the DPS16 while the main screen is displayed. This section explains the functions and operations of Q-Link functions.

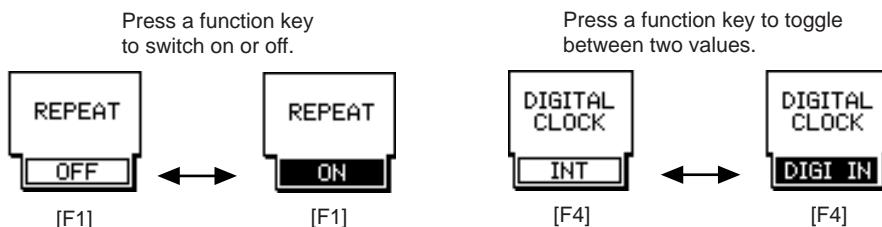
Basic operations of Q-Link functions

Press the [MAIN SCREEN] key to access the main screen. The following fields appear in the positions of [F1]–[F4] keys in the lower left area.

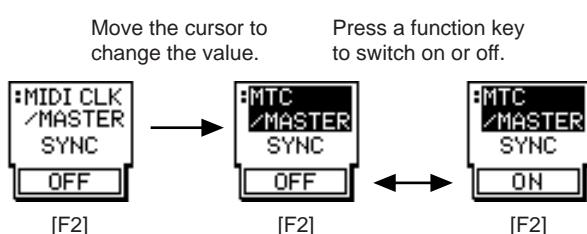


- ① This field enables you to select a function (a category of setting items). Press the [F4] key to move the cursor to the field and turn the [JOG] wheel to select a function. (An arrow “▶” appearing on the left in the field indicates the currently selected function.)
- ② This field indicates various parameters and functions. Parameters and functions assigned to the [F1]–[F3] keys vary depending on the function you selected in field (①). The following are three methods of setting and operating the parameters and functions:

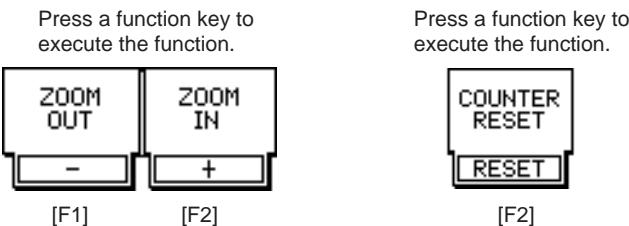
- **Press the corresponding function key to switch the parameter on and off or toggle between two values.**



- **Move the cursor to the field and turn the [JOG] wheel to change the value. Also, press the corresponding function key to turn the parameter on and off.**



- Press the corresponding function key to execute the function.



What Q-Link functions offer

You can select the following functions and set the following items and functions using Q-Link functions.

■ Auto Punch function → page 100

- Switching the Repeat function on and off
- Switching the Rehearsal function on and off
- Switching the Auto Punch In/Out function on and off

■ Sync/Clock function → page 100

- Setting the Vari Pitch function
- Selecting the type of sync operation for the DPS16 and external devices (MTC master, MTC slave, MIDI clock master)
- Selecting the clock source (internal clock, external clock) for DPS16 operation

■ Track View function → page 101

- Zoom in/out of Track View screen

■ Time Display function → page 102

- Selecting the type of time counter (absolute time, relative time)
- Resetting the current time to zero

■ Meter/Monitor function → page 102

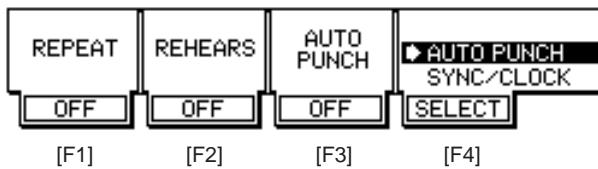
- Selecting whether the level meter indicates the pre- or post-fader signal level
- Selecting a signal source which the level meter indicates (tracks 1–16, AUX buses 1–4, effect return 1–4, ping-pong bus L/R)
- Selecting a signal to monitor on the record ready track while the DPS16 plays

Q-Link Functions

This section describes functions you can select from Q-Link Functions, and the parameters and operations assigned to the [F1]–[F3] keys for each function.

Auto Punch function

This function has parameters related to the Auto Punch In/Out function.



■ [F1] key/REPEAT parameter

This parameter enables you to set the Repeat function on or off. Pressing the [F1] key toggles between ON and OFF. When this parameter is turned on, the DPS16 plays back data between the IN point and OUT point (specified by the [IN] and [OUT] keys) repeatedly. (See page 48 for more information on the Repeat function.)

■ [F2] key/REHEARSAL parameter

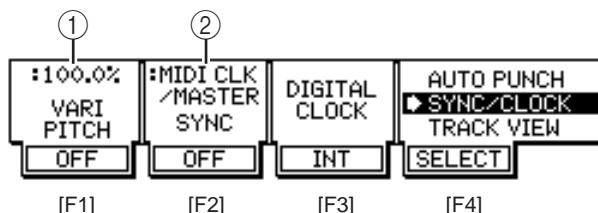
This parameter enables you to set the Rehearsal function on or off. Pressing the [F2] key toggles between ON and OFF. When this parameter is turned on, actual recording is not performed. Only the monitoring source (input or track playback) is changed. (See page 52 for more information on the Rehearsal function.)

■ [F3] key/AUTO PUNCH parameter

This parameter enables you to set the Auto Punch In/Out function on or off. Pressing the [F3] key toggles between ON and OFF. When this parameter is turned on, you can perform Auto Punch In/Out. (See page 51 for more information on the Auto Punch In/Out function.)

Sync/Clock function

This function enables you to set the sync and digital clock parameters, as well as adjusting the recording/playback speed (Vari Pitch).



■ [F1] key/VARI PITCH parameter

This parameter enables you to set up the Vari Pitch function on or off and to adjust the recording/playback speed. Use the [F1] key to toggle the Vari Pitch function ON and OFF. When the function is turned on, the recording and playback speed varies according to the value specified in the field (①).

- ① This numeric field allows you to specify the amount of recording/playback speed variation as a percentage, based on a standard speed of 100%. Move the cursor to this field, and turn the [JOG] wheel to adjust the value.

■ [F2] key/SYNC parameter

The following parameters are used to synchronize the DPS16 to an external MIDI device. Use the [F2] key to toggle the sync operation ON and OFF. When this field is set to ON, the DPS16 and the external device operate in sync as specified in the field (②). (Refer to Chapter 12 “MIDI Applications” for more information on the sync operation using external devices.)

- ② This field enables you to select the type of sync operation of the DPS16 and the external device. Move the cursor to this field and turn the [JOG] wheel to select a type from the following four options.

- **MIDI CLK/MASTER** . The MIDI clock and Song Position Pointer are transmitted from the MIDI OUT jack of the DPS16 to synchronize with the external device.
- **MTC/MASTER** The MIDI timecode (MTC) is transmitted from the MIDI OUT jack. The MTC frame rate parameter is set in Setup mode. (See page 132.)
- **MTC/SLAVE** The DPS16 receives the MIDI timecode (MTC) at the MIDI IN jack and synchronizes to the timecode. The frame rate parameter is set in Setup mode. (See page 137.)
- **OFF** Synchronization is turned off. (The same occurs when you press the [F2] key to set the SYNC parameter to “OFF”.)

■ [F3] key/DIGITAL CLOCK parameter

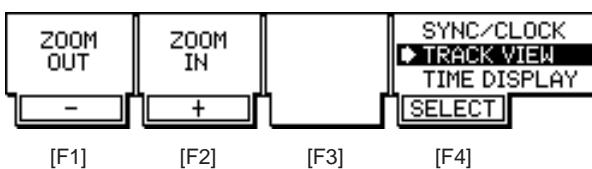
This parameter enables you to select a digital clock source for DPS16 operation. Use the [F3] key to toggle between two settings (INT and DIG IN).

- **INT** (internal clock) The DPS16 follows its internal clock (default setting). For usual use, select this setting.
- **DIG IN** (external clock) The DPS16 locks to the external digital clock.

✓ TIP : When a digital signal is input from the DIGITAL IN jack of the DPS16, select “DIG IN” (external clock) to obtain quality signal.

Track View function

This function enables you to zoom the Track View window on the main screen in and out.



■ [F1] key/ZOOM OUT

Press the [F1] key to zoom out the Track View window horizontally. The Zoom Out function does not provide any parameters.

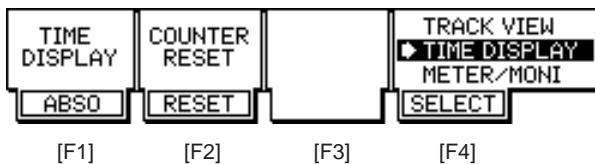
■ [F2] key/ZOOM IN

Press the [F2] key to zoom in the Track View window horizontally. The Zoom In function does not provide any parameters.

►NOTE : With this function, the [F3] key does not have any parameters or functions.

Time Display function

This function enables you to set the time counter and BBC counter displayed on the main screen.



■ [F1] key/TIME DISPLAY parameter

This parameter enables you to select absolute time or relative time for the time counter. Use the [F1] key to toggle between two options (ABSO/RELA).

- ABSO (absolute time) Absolute time referenced to the DPS16's internal zero point (00:00:00:00,00) (default setting).
- RELA (relative time) Relative time referenced to any zero point you set (00:00:00:00,00).

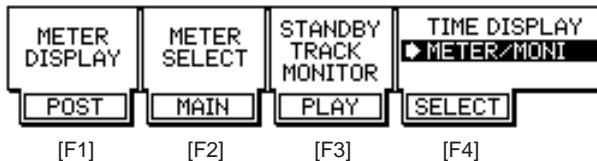
■ [F2] key/COUNTER RESET

This function resets the relative time value, referenced to the current point as the zero point. Press the [F2] key to change the time counter display to relative time (RELA). The time value will be reset to 00:00:00:00,00.

►NOTE : No parameters or functions are assigned to the [F3] key.

Meter/Monitor function

This function enables you to set the parameters related to the level meters shown on the main screen, and monitoring signals.



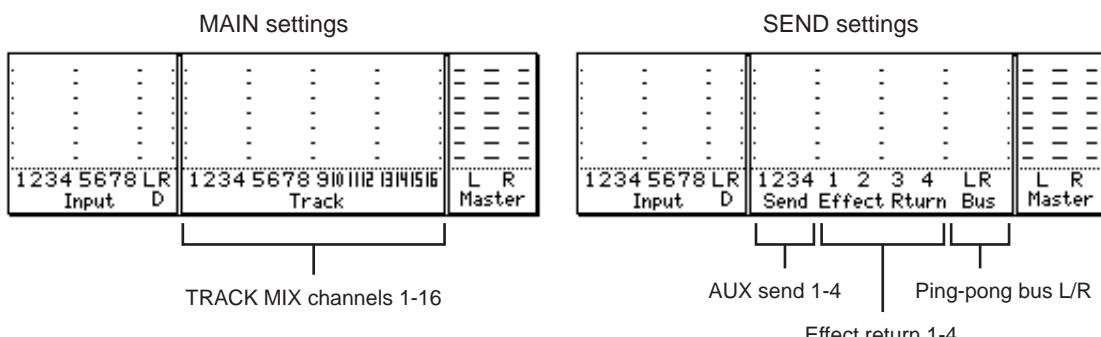
■ [F1] key/METER DISPLAY parameter

This parameter enables you to select whether the level meters for the INPUT MIX channels (1–8, DL/DR) and TRACK MIX channels (1–16) indicate a pre- or post-fader signal level. Use the [F1] key to toggle between pre-fader (PRE) and post-fader (POST).

■ [F2] key/METER SELECT parameter

This parameter enables you to select a signal source indicated by the center level meters. Use the [F1] key to toggle between two settings (MAIN and SEND).

- MAIN The meters display the levels of TRACK MIX channels (1–16) (default setting).
- SEND The meters display the signal levels of AUX sends (Send) 1–4, Effect return 1–4, and ping-pong bus (BUS) L/R.



■ [F3] key/STANDBY TRACK MONITOR parameter

While the DPS16 is playing, you can switch between input signals and track playback signals to monitor record standby tracks (that have their [RECORD SELECT] keys turned on) while the DPS16 is playing back. Use the [F3] key to toggle between two settings (PLAY and SOURCE).

- PLAY Track playback signals assigned to the tracks are selected for monitoring. The track level meters indicate the output levels of the track signals.
- SOURCE Input signals routed to the tracks are monitored. The level meters of the corresponding tracks show the levels of the input signals. This is useful when you wish to practice your performance before recording since you can monitor both the recorded track sound and the input signal (your own performance) at the same time.

►►NOTE : When you perform the Punch In/Out operation on the DPS16, make sure that you set this parameter to “PLAY”.

Setup mode

Pressing the [SETUP] key accesses Setup mode in which you can make various settings, such as a beat map and a tempo map. The following settings are available in Setup mode.

■ Setting a beat map (→ page 104)

You can set the time signature information of a Project. Use the beat map to synchronize the DPS16 to the external MIDI sequencer via the MIDI clock.

■ Setting a tempo map (→ page 105)

You can set the tempo information of a Project. Use the tempo map to synchronize the DPS16 to the external MIDI sequencer via the MIDI clock.

■ Other settings (→ page 106)

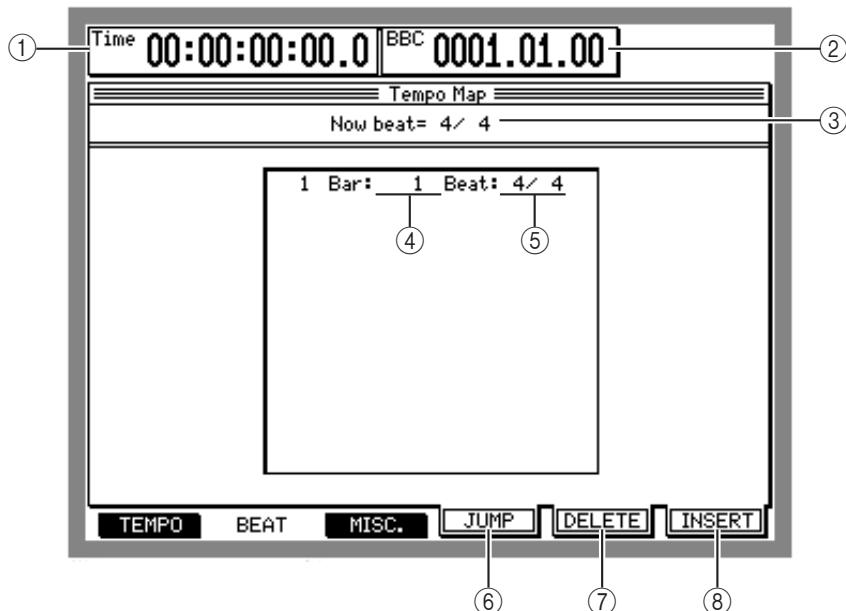
You can make other various settings relating to DPS16 operations.

- Setting the sampling frequency and bit rate
- Setting the frame rate, MMC, MIDI OUT/THRU
- Setting the offset time and the time value of the [TO] key and [FROM] key
- Setting the foot switch and Undo function

Setting a beat map

During the sync operation using the DPS16 and MIDI sequencer via the MIDI clock and Song Position Pointer, if the time signature does not match that of the actual song and you try to play back from the middle of the song, the time value indicated on the time counter and the playback position of the MIDI sequencer may be out of sync with the playback sound of the DPS16. To avoid this, you need to enter the time signature information in the beat map. (See page 134 for more information on the sync operation using MIDI clock.)

Press the [F2] (BEAT) key in Setup mode to display the following screen for setting a beat map. The names and functions of the parameters on the screen are as follows.



① Time counter

The time counter indicates the current transport position by hour, minute, second, frame, and sub-frame. You can specify a locate point by moving the cursor to this field and setting the value.

② BBC counter

The BBC counter indicates the current transport position by bar (measure), beat, and clock. You can specify a locate point by moving the cursor to this field and setting the value.

③ Now beat

This field indicates the tempo of the current position that is shown on the BBC counter (②).

④ Bar

This field enables you to set the bar number of the time signature information. Move the cursor to this field, and turn the [JOG] wheel to specify the number of the bar that contains the existing time signature information. However, the number of a bar should not exceed the number of bars that contain time signature information.

⑤ Beat

This field enables you to set the time signature. The range is 1/4 – 32/32.

⑥ [F4] (JUMP) key

Press the [F4] (JUMP) key to locate the bar position of the time signature information selected by the cursor.

⑦ [F5] (DELETE) key

Press the [F5] (DELETE) key to delete the time signature information selected by the cursor.

⑧ [F6] (INSERT) key

Press the [F6] (INSERT) key to insert the time signature information of the current bar indicated on the BBC counter (②).

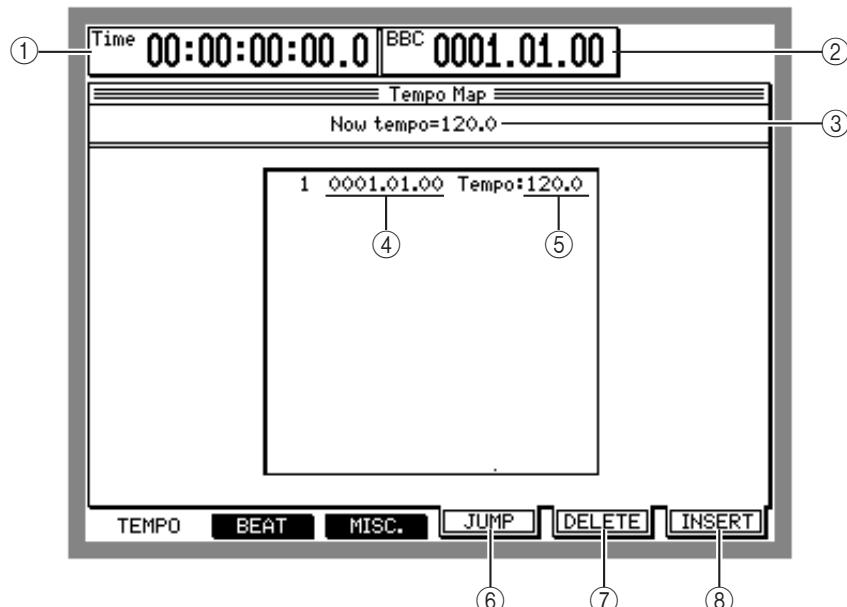
►NOTE : The first bar of the beat map contains a preset time signature of 4/4. You cannot change or delete the bar number for this information, but you can change the time signature value.

Setting a tempo map

When an external device, such as a MIDI sequencer, synchronizes to the Song Position Pointer and the MIDI clock transmitted from the DPS16, the tempo settings of the MIDI sequencer are ignored and it runs by the tempo information from the DPS16. Therefore, you must specify the tempo of the MIDI clock on the DPS16 using the tempo map. (See page 134 for more information on the sync operation using MIDI clock.)

►NOTE : Set a beat map (see page 104) before setting a tempo map.

Press the [SETUP] key to access Setup mode and press the [F1] (TEMPO) key to display the following screen for setting a tempo map. The names and functions of the parameters on the screen are as follows.



① **Time counter**

The time counter indicates the current transport position by hour, minute, second, frame, and sub-frame. You can specify a locate point by moving the cursor to this field and setting the value.

② **BBC counter**

The BBC counter indicates the current transport position by bar (measure), beat, and clock. You can specify a locate point by moving the cursor to this field and setting the value.

③ **Now tempo**

This field indicates the tempo of the current position that is shown on the BBC counter (②).

④ **Bar/Beat/Clock**

This field allows you to set the position of the tempo change information. Move the cursor to the Bar, Beat, or Clock field (they are separated by periods(.)), and turn the [JOG] wheel to change the position of the inserted tempo change information. However, the bar number can not exceed those numbers in the tempo change events already exist.

⑤ **Tempo**

This field enables you to set the tempo of the tempo change information. Move the cursor to the integer and decimal fields and turn the [JOG] wheel to change the tempo value. The range is from 30.0 – 300.0.

⑥ **[F4] (JUMP) key**

Press the [F4] (JUMP) key to locate the position of tempo change information selected by the cursor.

⑦ **[F5] (DELETE) key**

Press the [F5] (DELETE) key to delete tempo change information selected by the cursor.

⑧ [F6] (INSERT) key

Press the [F6] (INSERT) key to insert tempo change information of the current position indicated on the BBC counter (②).

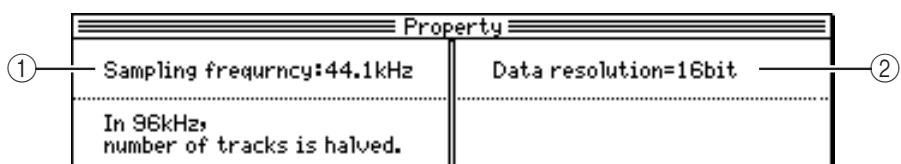
►NOTE : The first bar of the tempo map (0001.01.00) contains a tempo of 120 as a preset. You cannot move or erase this tempo information, but you can change the tempo value.

Other settings

Pressing the [F3] (MISC.) key in Setup mode accesses the screen where you can set various parameters related to DPS16 operations. This section explains these parameters from the top of the screen.

Project Setting

This screen displays the sampling rate and data resolution of a Project.

**① Sampling frequency**

This field enables you to select a sampling rate for the Project. Move the cursor to this field and turn the [JOG] wheel to select one of the following four sampling rates.

- 96kHz This rate offers the highest quality recording, but the number of tracks available for recording is limited.
- 48kHz This rate offers the highest 16-track recording and playback. However, the available recording time will be shorter than when using 44.1kHz or 32kHz. This rate is used for general DAT recorders.
- 44.1kHz This standard rate is generally used on CDs and MDs.
Make sure that you select this option when you write a Project to a CD-R/CD-RW disc.
- 32kHz The tonal quality is slightly lower, but the available recording/playback time is the longest. You can select this option if tonal quality is not critical and the recording time is your top priority.

►NOTE : You can change the sampling rate after recording data to tracks. However, in this case, the playback pitch will be changed. Set the sampling rate before you start recording.

② Data resolution

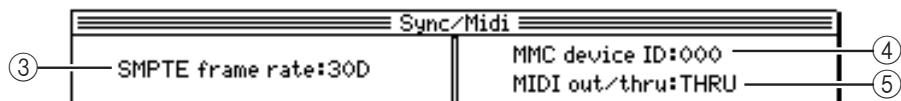
This field indicates the data resolution of a Project.

- 24bit High quality sound will be recorded but the available recording/playback time will be shorter.
- 16bit This is a standard resolution used by CDs, MD, and DAT machines. Make sure that you select this option when you write a Project to a CD-R/CD-RW disc.

✓ TIP : If the Data resolution field is set to "24 bit," 24-bit digital signals can be input and output via the DIGITAL IN/OUT jacks on the rear panel.

Sync/MIDI

You can set parameters related to the frame rate, MMC device ID, and MIDI OUT/THRU connector.



③ SMPTE frame rate

This parameter enables you to select a frame rate (the number of frames per second) that appears in the time counter and time fields. Move the cursor to this field and turn the [JOG] wheel to set the value. Options are 24, 25, 30 (30 frames, non-drop), 29.97, and 30D (30 frames, drop).

►►NOTE : Match the frame rate of the DPS16 and a connected external device to synchronize the system using the MIDI timecode (see page 137).

④ MMC device ID

This field enables you to set the device ID of a connected external device that sends MMC (MIDI Machine Control) to the DPS16 to control the transport section of the DPS16. Move the cursor to this field, and turn the [JOG] wheel to set the device ID in the range of 0 to 126.

►►NOTE : To control the DPS16 from an external device using MMC (see page 138), the device ID of the external transmission device and that of the DPS16 should match.

⑤ MIDI out/thru

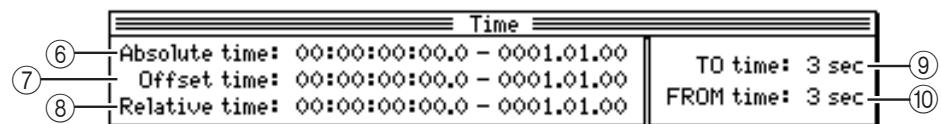
You may select whether the MIDI OUT/THRU connector is used as a MIDI OUT or a MIDI THRU. Move the cursor to the Out/Thru field, and turn the [JOG] wheel to select one of the following options.

- THRU The MIDI OUT/THRU connector functions as a MIDI THRU. The signal received at the MIDI IN connector will be output as is, and no signal inside the DPS16 will be output.
- OUT The MIDI OUT/THRU connector functions as a MIDI OUT and signals inside the DPS16 will be output.

►►NOTE : If you use the DPS16 as a sync master device to send the MTC or the MIDI clock to an external device, you must set this parameter to OUT.

Time

You can set the offset time and the time value for the [TO] key and [FROM] key.



⑥ Absolute time

This display only field indicates the current position of the DPS16 in absolute time (hour, minute, second, frame, sub-frame) or by bar, beat, clock.

⑦ Offset time

This time field allows you to set an offset time from the absolute time either by the time indication (hour, minute, second, frame, sub-frame) or by the bar indication (bar, beat, clock). Move the cursor to this field and use the [JOG] wheel or the [NUMBER/NAME] key to set the value. This field is interlocked with the Relative time field (⑧). If you change the value in this field, the value of the Relative time field will change.

⑧ Relative time

This display indicates the current position of the DPS16 by relative time (hour, minute, second, frame, sub-frame) or by bar, beat, clock. A Relative time value is obtained by subtracting an Offset value from the Absolute time. Move the cursor to this field, and use the [JOG] wheel or the [NUMBER/NAME] key to change the value. (Along with the change, the Offset value will change accordingly.)

✓ TIP : Pressing the [F2] key (counter reset) in the Time Display function (one of the Q-Link functions) will reset the Relative time field value to zero and automatically change the value of the Offset time field accordingly.

⑨ TO time

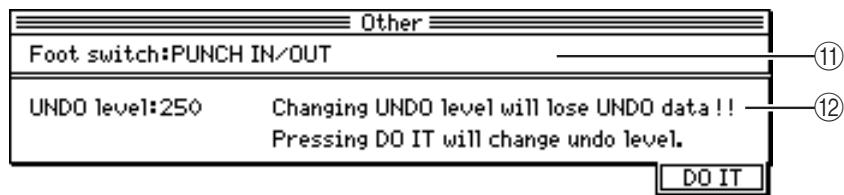
This numeric field enables you to set the number of seconds to back up from the current position to start playback when you press the [TO] key. Move the cursor to this field, and turn the [JOG] wheel to set a value between one and ten seconds.

⑩ FROM time

This numeric field enables you to set how many seconds to play from the current position when you press the [FROM] key. Move the cursor to this field, and turn the [JOG] wheel to set a value between one and ten seconds.

Others

You can set the foot switch function and the Undo function.



⑪ Foot switch

You can select a function for an optional foot switch connected to the FOOT SW jack on the rear panel. Move the cursor to this field, and turn the [JOG] wheel to select one of the following options.

- PUNCH IN/OUT This option is used to perform the Punch In/Out operation.
- Others (PLAY, STOP, etc.) The foot switch operates in the same way as when you press the corresponding key on the top panel.

⑫ UNDO level

This numeric field enables you to set the number of previous edits or recording operations that can be restored by using the [UNDO] key on the top panel. Move the cursor to this field, and turn the [JOG] wheel to set the level in the range of 0 to 250. (See page 33 for more information on the Undo function.) The changed undo level setting becomes effective when you press the DO IT key.

►NOTES :

- If you set the Undo level parameter to 0, the [UNDO] key will be disabled.
- If you set the level too high, a large amount of disk space will be used to store the previous data when you overdub or edit data. If there is not enough space on the disk, set the undo level to a lower value.
- When you change the undo level, undo data on the hard disk will be erased.

Chapter 10: Project Management (Project Mode)

This chapter describes various methods to manage Projects. It also explains how to create an audio CD using a SCSI-compatible CD-R/CD-RW drive.

►NOTE : Some of the steps described here involve deletion of material recorded on the disk or the DPS16. Proceed carefully so that important data will not be lost.

What is a Project?

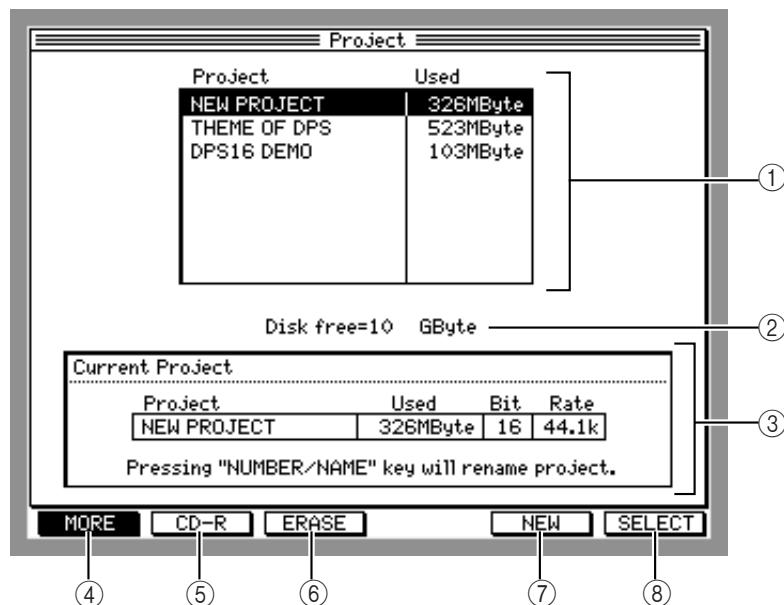
The DPS16 manages recorded songs as “Projects”. Each Project contains the following information.

- **Audio data in tracks**
- **Parameter settings in Mixer mode**
- **Parameter settings in QUICK PATCH mode**
- **Parameter settings in Setup mode**
- **Parameter settings in Effect mode**
- **Locate point, quick locate point, IN point, and OUT point**
- **Project name**

You can store multiple Projects on a disk, but the DPS16 can handle only one Project at a time. The Project being processed on the DPS16 is called the “current Project”.

Using the Project mode screen

Project mode is used to manage Projects. When you press the [PROJECT] key while transport section is stopped, the DPS16 enters Project mode, and the following Project screen appears. This screen contains the following information.



① Project list

Displays a list of Projects stored on the currently selected disk (current disk). The Project and Used fields display the name and size of each Project.

(2) Disk free

Displays the amount of free space on the current disk.

(3) Current Project

Displays the current Project information (Project name, size, number of bits, sampling rate).

(4) [F1] (MORE) key

This function key is used to recall the screen to back up Projects on the current disk to an external SCSI device or DAT machine. (See page 118.)

(5) [F2] (CD-R) key

This function key is used to recall the screen to create an audio CD using a CD-R/CD-RW drive connected to the SCSI connector. (See page 113.)

(6) [F3] (ERASE) key

This function key is used to recall the screen to erase a Project individually on the current disk. (See page 113.)

(7) [F5] (NEW) key

This function key is used to recall the screen to create a new Project. (See page 112.)

(8) [F6] (SELECT) key

This function key is used to select the current Project. (See page 111.)

Selecting a current Project

When you turn on the power to the DPS16, it will automatically recall the Project used last time as the Current Project. However, you can select a different Project as the Current Project by following the steps below.

1. Move the cursor to the Project you wish to select in the Project list (①).

Project	Used
NEW PROJECT	326MByte
THEME OF DPS	523MByte
DPS16 DEMO	103MByte

2. Press the [F6] (SELECT) key.

The Project you selected in step 1 becomes the current Project and appears in the Current Project field (③).

Pressing the [NUMBER/NAME] key on the Project screen enables you to change the name of the Project indicated in the Current Project field. See page 17 for more information on entering characters.

Creating a new Project

You need to create a new Project to make a new recording. Follow the steps below to create a new Project.

1. Press the [F5] (NEW) key on the Project screen.

The following window appears.



① New project

This field enables you to name a new Project. Press the [NUMBER/NAME] key to start naming the Project. (See page 17.)

② Resolution

This field enables you to set the resolution for recording and playback of Projects.

③ Sampling rate

This field enables you to set the sampling rate for recording and playback of Projects.

2. Move the cursor to fields ①–③ and set the parameters, if necessary.

✓ TIP : You can change the sampling rate in Setup mode after you create a new Project. (See page 106.) However, if you have recorded in any track, changing the sampling rate later will change the pitch.

3. Press the [F6] (DO IT) key.

The DPS16 creates a new Project and displays the Main screen.

Press the [F1] (CANCEL) key to cancel the operation.

►NOTE : When you create a new Project, the Project is selected as the current Project, and the previous Project is automatically stored on the current disk.

Erasing a Project

This operation erases Projects from the current disk. If the disk cannot accommodate the data, erase unnecessary Projects from the disk until you retrieve sufficient space. Follow the steps below to erase Projects from the disk.

⚠ CAUTION : Erasing Projects will permanently delete all data related to the Projects. Proceed very carefully.

1. Move the cursor on the Project screen to select a Project to erase.

2. Press the [F3] (ERASE) key.

The DPS16 displays the screen that asks for confirmation regarding erasing the Project.



① Target Project

This field displays the name of the Project to be deleted.

3. Press the [F6] (ERASE) key to execute the erase operation.

The DPS16 enters the selected Project and returns to the Project screen.

Press the [F1] (CANCEL) key to execute the erase operation.

Writing a Project to CD-R/CD-RW

If you have connected an MMC (Multimedia Command)-compatible CD-R or CD-RW drive to the SCSI connector, you can write any two physical tracks in a Project to a CD-R or CD-RW disc. Later you can play the CD-R/CD-RW disc on a music CD player.

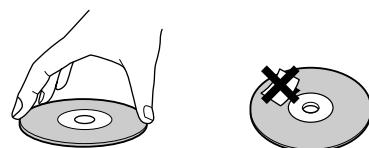
► NOTES :

- Consult the dealer you purchased the DPS16 from or the AKAI professional Service Center regarding models of CD-R/CD-RW drives which are compatible with the DPS16.
- If your CD player does not support a CD-RW disc, it cannot play CD-RW disc audio. If you are going to distribute numerous audio CDs, AKAI professional recommends you use a CD-R disc.

⚠ CAUTION :

■ Handling discs

- Handle discs very carefully to avoid any fingerprints, dust, dirt, or scratches on the surface of the disc.
- Do not glue any labels or stickers onto the disc.



■ Storing discs

- Do not store discs in a location which is subject to direct sunlight, high temperatures, or high humidity.
- Always return discs to their plastic cases for storage.

■ Cleaning discs

- To clean a disc, use a soft, dry cloth to wipe the surface from the center to the edge.
- If dirt persists, wipe it off using a CD cleaner or ethyl alcohol. Do not use volatile chemical substances such as denatured alcohol, cleaning fluid intended for analog records, or antistatic fluids, as these may damage the disc.



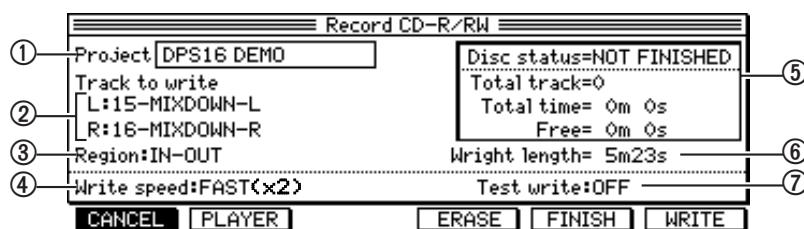
Follow the steps below to write a Project to a CD-R/CD-RW disc.

►NOTE : Before starting the steps below, check the Disk mode main screen to see if the DPS16 recognizes the CD-R/CD-RW drive connected to the SCSI connector. (For more information on Disk mode, see page 125.) Also, insert a CD-R/CD-RW disc into the CD-R/CD-RW drive.

1. On the Project screen, select a Project to write onto the disc as the current Project.

2. Press the [F2] (CD-R) key.

The following screen appears.



1 Target project

Displays the name of the current Project.

2 Track to write L/R

Selects physical tracks (1-16) of the DPS16 you wish to write into the L/R channels of the disc.

3 Region (IN-OUT/ALL)

Specify the region of the data you wish to write.

4 Write speed (MAX/SLOW(x1)/FAST(x2)/x3/x4)

Specify the writing speed here. When MAX is selected, the fastest speed of the connected drive available (within x1 to x4) will be used.

5 This area displays the information which is on the disc in the CD-R/CD-RW drive.

- Disc status (NOT FINISHED/FINISHED/NO DISC)

The Finish process is a process of writing readout information to a disc (see page 117). “NOT FINISHED” appears if the Finish process has not been performed. “FINISHED” appears if the Finish process has already been performed. “NO DISC” appears if no disc is inserted in the drive.

- Total track Displays the total number of tracks on the disc.

- Total time Indicates the total time recorded on the disc.

- Free Indicates the time available on the disc.

6 Write length

Indicates the length of the actual recording data.

7 Test write (ON/OFF)

This field allows you to select whether or not to perform test writing (ON) before actually writing the data onto the disc. (see “Test write” on page 115)

3. Move the cursor to the Track to write L/R field (2) and set the DPS16 track numbers (1-16) to be stored in the L/R channels of the disc.

- When you set the track numbers in the L/R fields, the track name specified in V.Track mode (see page 60) appears on the right.
- If you wish to write mono data, select the same track number for the L and R channels.

4. Move the cursor to the Region field (3) and select the track region (IN-OUT/ALL) to write.

- IN-OUT Writes a region between the IN and OUT points of the track selected in step 3.
- ALL Writes the entire audio data of the track selected in step 3.

►NOTE: If the Region field is set to “ALL”, the entire length of the selected track from beginning to end will be written onto the disc, even if the track contains silent parts. This length (duration) does not necessarily match the overall length of the Project.

5. Move the cursor to the Write speed field (4) and select the writing speed.

- MAX Writes data at the fastest speed of the connected drive available within the range of x1 to x4. Writing time varies depending on the speed selected.
- SLOW (x1) Writes data at normal speed. Writing takes about the same time as the recording time indicated in the Write length field (6).
- FAST (x2) Writes data at 2x speed. Writing takes about half of the recording time indicated in the Write length field.
- (x3) Writes data at 3x speed. Writing takes about 1/3 of the recording time indicated in the Write length field.
- (x4) Writes data at 4x speed. Writing takes about 1/4 of the recording time indicated in the Write length field.

6. Set the Test write field (7) to ON to perform test write.

✓ TIP: Test write is a process in which a weak laser is projected onto the disc surface to check whether any malfunctions will occur during writing data transfer. If you have not written data to discs at all or have only done so a few times, perform the test write process.

7. Press the [F6] (WRITE) key.

The DPS16 displays the screen for confirming execution of writing.

**8. Press the [F5] (DO IT) key to execute writing.**

- If you have set the Test write field to “ON” in step 6, the test write process starts. When the test write process finishes, actual writing starts.
- If you have set the Test write field to “OFF”, press the [F6] (WRITE) key to start writing.
- Press the [F1] (CANCEL) key to cancel writing.
- When writing is completed, the DPS16 returns to the Project screen.

✓ TIP: You can continue the writing operation to record other tracks or other Projects to the same CD-R/CD-RW disc by repeating the procedure from step 1 as long as you do not perform the Finish process (explained on page 117.)

Playing back the CD-R/CD-RW

You can play back the disc you recorded in the CD-R/CD-RW drive.

►NOTE : You may play back the disc you just recorded only in the CD-R/CD-RW drive. The Finish process must first be performed in order to make the CD-R/CD-RW disc playable on an audio CD player. (See page 117 for more information on the Finish process.)

1. Press the [F2] (CD-R) key on the Project screen.

2. Press the [F2] (PLAYER) key.

The following screen appears.



- ① Track No.

Indicates the selected track number.

- ② Track Time/Elapsed Time

Indicates the elapsed time of playback. Use the [F2] (DISPLAY) key to switch between the Track Time (the elapsed time of the selected track) and the Elapsed Time (the elapsed time of the entire disc).

- ③ Total track

Indicates the total number of tracks on the disc.

- ④ Track list

Displays a list of the track numbers and track times on the disc.

- ⑤ Total time

Indicates the total time recorded on the disc.

3. Use the [F3] (Track-) and [F4] (Track+) keys to select a track to play back.

4. Press the [F6] (PLAY) key to start playing the selected track.

Audio is played through the audio output connectors and headphone connector on the CD-R/CD-RW drive.

5. Press the [F5] (STOP) key to stop playback.

6. Press the [F1] (EXIT) key to end the operation.

The DPS16 displays the step 1 screen.

Finish process

This process writes a data region (readout information), which includes the position data for data and tracks, to the disc. Until you perform the Finish process, you can continue writing other Projects to the disc. However, the Finish process must first be performed in order to make the CD-R/CD-RW disc playable on the audio CD player. (Playable only on the CD-R/CD-RW drives.)

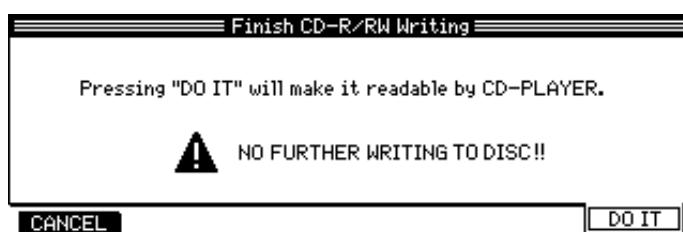
►►NOTE : The audio CD player must support the CD-RW disc format to play back the audio from the CD-RW disc, even if the Finish process has been performed.

1. Press the [F2] (CD-R) key on the Project screen.

Make sure that the Disc status field indicates "NOT FINISHED" (a disc for which the Finish process has not been performed is inserted).

2. Press the [F5] (FINISH) key.

The DPS16 displays the screen to confirm the execution of the Finish process.



►►NOTE : Once the Finish process is performed, further recording to the disc is not possible.

3. Press the [F6] (DO IT) key to proceed with the Finish process.

The DPS16 performs the Finish process. When the operation is completed, the Disc status field indicates "FINISHED".

Erasing data from the CD-RW disc

You can erase the contents of a CD-RW disc which is in the CD-RW drive for future recording. You can make recording on such a disc even after you have performed the Finish process with the disc.

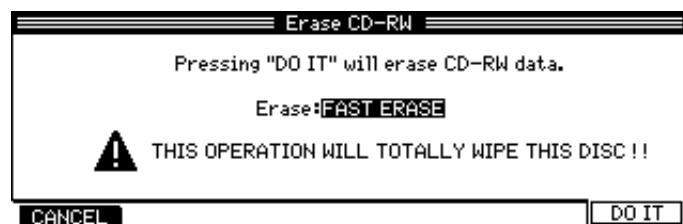
►►NOTE : You cannot use this operation with a CD-R drive and a CD-R disc.

⚠ CAUTION : This operation will erase all data stored on the CD-RW disc. Proceed carefully so that you will not lose important data.

1. Press the [F2] (CD-R) key on the Project screen.

2. Press the [F3] (ERASE) key.

The DPS16 displays the screen for confirming erasure of data from the disk.



3. Press the [F6] (DO IT) key to execute the erase operation.

The erase operation starts. When it is completed, the screen returns to the display shown during step 1.

Backing up Projects

You can back up Projects on the current disk to external SCSI devices (such as MO, CD-R, CD-RW drives) as well as a DAT machine connected to the DIGITAL connector. Be sure to back up important Projects in case the internal hard disk breaks down or the Project is accidentally erased.

Backing up Projects to an external SCSI device

You can back up the current Project to a connected SCSI device, such as a hard disk, MO drive, CD-R, CD-RW drive. You can store up to 99 Projects in the backup device.

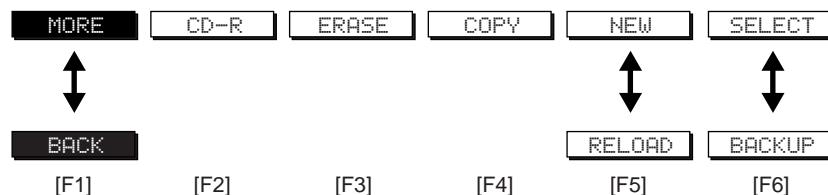
►NOTE :

- If you back up Projects to a hard disk, that hard disk becomes a dedicated backup disk. Therefore, you cannot use it as the current disk unless you reformat or erase the disk. You cannot select a Project that was backed up as the current Project.
- If you wish to make a copy of a Project that is selectable as the current Project, use the disk copy function (see page 130).
- Before you start the backup operation using the CD-R/CD-RW drive, make sure that you insert a disc in the drive.

1. Use the cursor on the Project screen to select the Project you wish to back up.

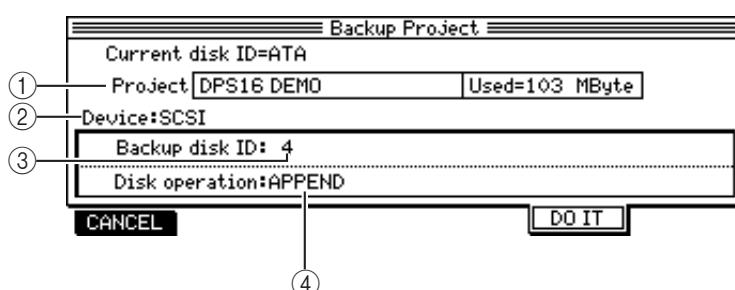
2. Press the [F1] (MORE) key.

The functions of the [F1] – [F6] keys change as follows:



3. Press the [F6] (BACKUP) key.

The following screen appears.



① Project

Indicates the name and size of the Project for backup selected in step 1.

② Device (SCSI/DAT)

Enables you to select the backup destination device. If you select "DAT", the values of fields ③ - ⑩ change (see page 120).

③ Backup disk ID

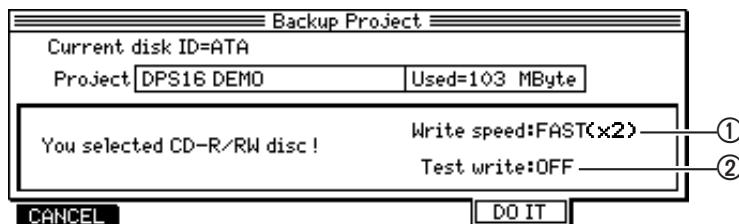
Enables you to select an ID number of the backup SCSI device.

④ Disk operation (FULL FORMAT/FAST ERASE/APPEND)

Enables you to select the process performed on the backup SCSI device.

4. Move the cursor to the Device field (2) and set to "SCSI".
5. Move the cursor to the Destination Disk field (3) and select the ID number of the backup SCSI device.
6. Move the cursor to the Disk Operation field (8) and specify whether to format the backup SCSI device (FULL FORMAT), erase the data on the device (FAST ERASE), or add backup data (APPEND).
 - If the backup disk has not been formatted, select "FULL FORMAT". (For more information on the format and erase operation, see page 127.)
 - You can select "APPEND" for a SCSI device that already has backup data via the FULL FORMAT or FAST ERASE command.
7. If you have selected the ID number of the CD-R/CD-RW drive in step 5, perform the following operations, as necessary.

When you press the [F5] (DO IT) key, the following window appears.



- In the Write speed field (1), select the writing speed. The selectable options are MAX, SLOW (x1), FAST x2, x3, x4, x5, x6, x7, and x8. When MAX is selected, the fastest speed of the connected drive available within the range of x1 to x8 is used.
- If you wish to perform test write before the writing operation, set the Test write field (2) to ON (See page 115).

8. Press the [F5] (DO IT) key.

- If you have selected "APPEND" in step 6, the backup operation starts when you press the [F5] (DO IT) key.
- If you have selected "FULL FORMAT" or "FAST ERASE" in step 6, the screen displays the backup device information (ID, product name, manufacturer name, and version number), and the confirmation for erasing the contents.



⚠ CAUTION : If you execute the operation, all data on the backup disk will be erased. Proceed very carefully so that important data is not lost.

9. Press the [F6] (DO IT) key to execute the backup operation.

The format/erase operation starts on the backup disk. When it is completed, the backup operation starts.

When the backup operation is completed, the display returns to the Project screen.

To cancel the operation, press the [F1] (CANCEL) key.

Backing up in multiple disks

You may back up one Project into multiple removable disks (such as Jaz, Zip, or MO disks).

Execute the backup operation as usual. Select a removable media device in step 4 above. When the first disk becomes full, the following window appears.



1. Eject the removable disk and insert a new disk.
2. As was done previously, set the Disk Operation field to FULL FORMAT or FAST ERASE.
3. Press the [F5] (DO IT) key to resume the backup operation.

►NOTES :

- Press the [F1] (CANCEL) key in step 3 to cancel the backup operation. If you cancel the operation, you will not be able to use the backup data stored on the first disk.
- Reload data from disks in the order in which you backed up. (See page 122 for more information on the reload operation.)

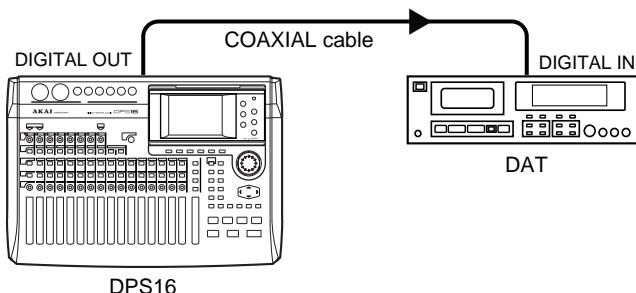
Backing up in an external DAT recorder connected to the DIGITAL jack

You can use an external DAT recorder connected to the DIGITAL jack to back up the Project in a DAT tape.

1. Use a standard digital audio COAXIAL cable to connect the DIGITAL OUT jack on the rear panel of the DPS16 and the digital input jack on the DAT recorder.

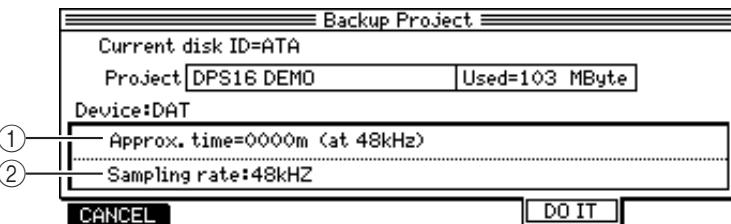
►NOTES:

- You need to use an optical/coaxial converter if the digital input jacks of the DAT recorder are optical.
- The 24-bit Projects cannot be backed up to the DAT recorders.



2. On the Project screen, select the desired Project to back up, then press the [F1] (MORE) key.
3. Press the [F6] (BACKUP) key.
4. Set the Device field to DAT.

The following screen appears.



① APPROX. time

Indicates approximate time taken until the backup operation is completed. This estimate is calculated based on the sampling rate of 48kHz.

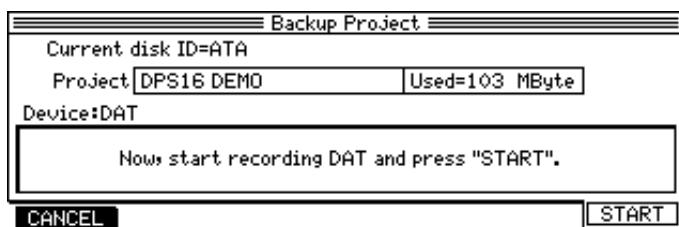
② Sampling rate (32kHz/44.1kHz/48kHz)

Enables you to select a sampling rate used for recording to a connected DAT recorder.

5. In the Sampling rate field (②), select a sampling rate (32kHz/44.1kHz/48kHz) used for recording to a connected DAT recorder.

6. Press the [F5] (DO IT) key.

The following screen appears.



7. Start recording on the DAT recorder, and press the [F6] (START) key on the DPS16.

The backup operation starts. When it is completed, the display returns to the Project screen.

Press the [F1] (CANCEL) key to cancel the backup operation in step 6.

⚠ CAUTION : Do not monitor the audio via the DAT during the backup operation. Since audio and other data is transmitted as a digital signal, an attempt to monitor it may damage the speakers.

Reloading the backup Project

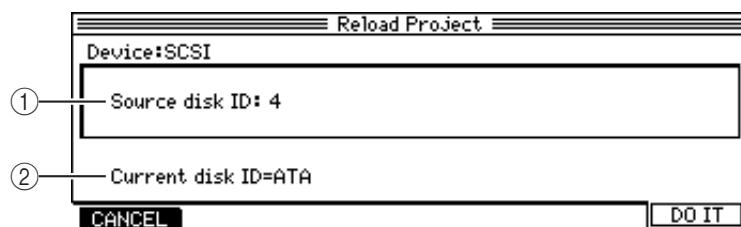
Follow the steps below to reload the backup Project from the external SCSI device or DAT recorder onto the current disk.

Loading from the SCSI device

- On the Project screen, press the [F1] (MORE) key, then the [F5] (RELOAD) key.**
The following screen appears.

- Set the Device fields to SCSI.**

The following screen appears.



- ① **Source disk**

This field is used to select a disk that has the stored backup data.

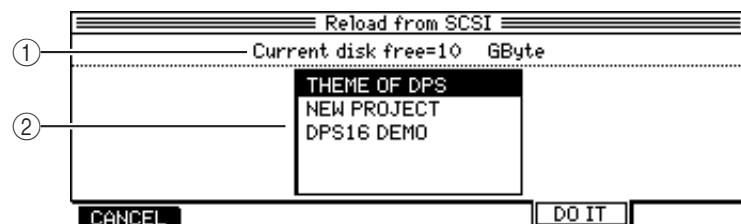
- ② **Current disk ID**

This field indicates the current disk that the backup data to be loaded.

- In the Source disk field (①), select the SCSI ID of the disk from which you wish to reload the backup data.**

- Press the [F5] (DO IT) key.**

The following screen appears.



- ① **Current disk free**

Indicates the free space on the current disk.

- ② **Project list**

Displays the list of Projects stored on the backup disk.

- Use the cursor to select the desired Project to reload.**

NOTE : You cannot reload a Project of a size larger than the free space displayed in the Current disk free field (①).

- Press the [F5] (DO IT) key to reload the backup data.**

The reload operation starts. When it is completed the display returns to the Project screen.

Press the [F1] (CANCEL) key to cancel the reload operation.

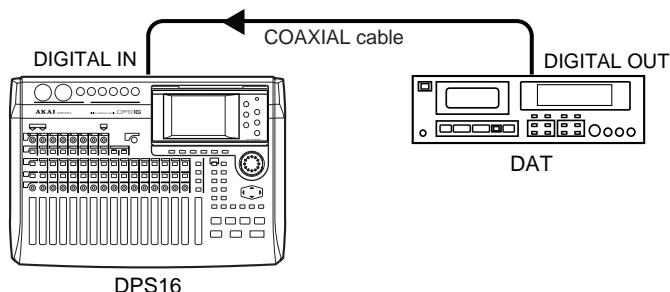
►NOTE : While the Project backed up in multiple removable media is being reloaded (see page 120), the following screen appears after the data on the first disk is loaded.



Insert the next disk and press the [F5] (DO IT) key.

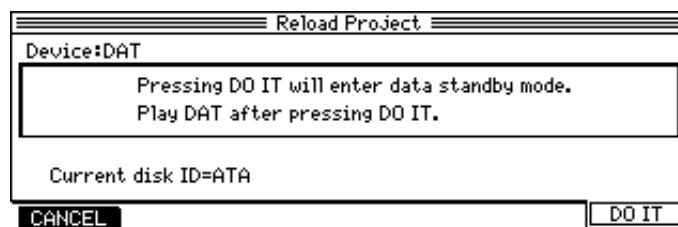
Reloading from a DAT

1. Use the digital audio COAXIAL cable (that you used for backup) to connect the DIGITAL IN jack on the rear panel of the DPS16 and the digital output jack on the DAT recorder.



2. On the Project screen, press the [F1] (MORE) key followed by the [F5] (RELOAD) key.
3. Set the Device field to “DAT”.

The following screen appears.



Press the [F6] (DO IT) key.

The following screen appears and the DPS16 waits for a signal from the DAT recorder.



4. Play the DAT tape that contains the backup data.

When the DPS16 starts receiving data from the DAT recorder, it displays the following screen.



- ① Displays the name of the Project being reloaded.

When the reload operation is completed, the display returns to the Project screen.

Press the [F1] (CANCEL) key to cancel the reload operation.

⚠ CAUTION : Do not monitor the audio via the DAT during the reload operation. Since audio and other data is transmitted as a digital signal, an attempt to monitor it may damage the speakers.

Chapter 11: Using a Disk (Disk Mode)

This chapter explains Disk mode, in which you can set up an internal hard disk and external SCSI devices.

►NOTE : Some operations described in this chapter involve the deletion of the entire disk contents. Proceed carefully so that important data is not lost.

Handling disks

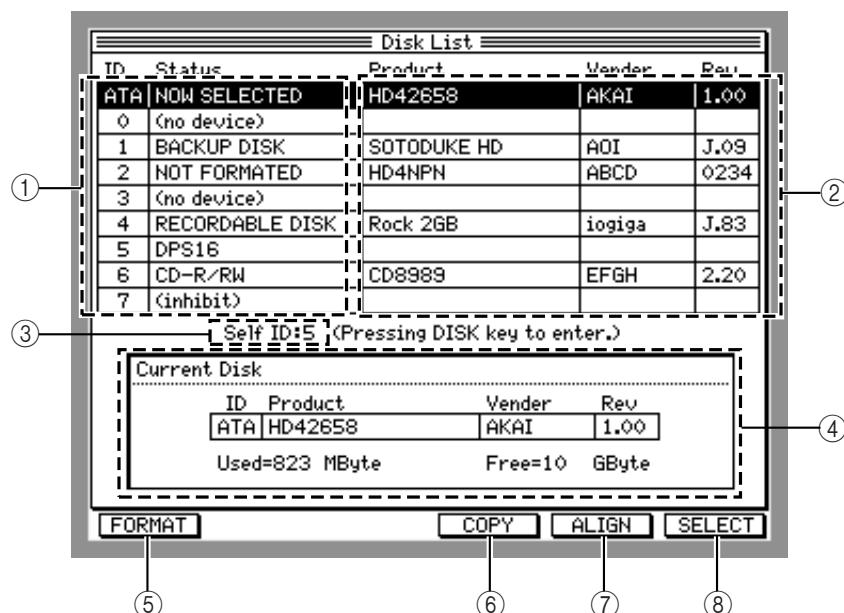
⚠ CAUTION :

Never turn off the power to the DPS16 or move the DPS16 while it is accessing the disk (recording or playback). Otherwise, the disk may be damaged and data be permanently lost.

If a removable drive is connected to the SCSI connector, do not turn the power to the DPS16 on or off while the media (cartridge) is inside the removable drive.

Using the Disk mode screen

Disk mode enables you to control the internal hard disk and an external SCSI device, and check the operation status. Pressing the [DISK] key while the transport section is stopped will set the DPS16 to Disk mode. The following main Disk mode screen (Disk List) appears. The screen contains the following information.



① ID/Status

These fields indicate the currently connected drive's condition (internal hard disk - ATA, and SCSI devices (ID0-7)). Each field has the following meaning.

- (no device) No device is connected.
- NOW SELECTED This disk has been selected as the current disk.
- BACKUP DISK Indicates the hard disk that has the stored backup data.
- NOT FORMATTED Indicates that an unformatted device is recognized.
- RECORDABLE DISK Indicates a formatted, recordable hard disk.
- DPS16 Indicates the DPS16.
- CD-R/RW Indicates that a CD-R or CD-RW drive has been connected. (See page 113 for more information on using CD-R/CD-RW drives.)

- CD-ROM Indicates that a CD-ROM drive has been connected.
- Other Indicates that other SCSI drive has been connected.
- (Inhibit) You cannot use this ID.

② Product/Vender/Rev

Indicates the product name, manufacturer and version number of the corresponding device.

►NOTE : The indication for some disks may not be correct.

③ Self ID

Enables you to set the ID (Self ID) of the DPS16. (→ page 126.)

④ Current Disk

Indicates the current disk information. You can check the used space and free space of the current disk in the Use field and Free field.

⑤ [F1] (FORMAT) key

This function key is used to recall the screen to delete or format a disk. (→ page 127.)

⑥ [F4] (COPY) key

This function key is used to recall the screen to copy data on the current disk to another disk. (→ page 130.)

⑦ [F5] (ALIGN) key

This function key is used to recall the screen to defragment audio data on the disk. (→ page 129.)

⑧ [F6] (SELECT) key

This function key is used to recall the screen to select the current disk. (→ page 127.)

Updating the device information

You can update the device status indicated in the ID/Status fields by pressing the [DISK] key on the Disk List screen. If the Status field indicates “(no device)” even if an external SCSI device is connected to the DPS16, press the [DISK] key to update the status. If the indication does not change, turn the power to the DPS16 off and check the SCSI connection.

Changing the Self ID number

You can change the Self ID (DPS16's ID) number, if necessary.

1. Move the cursor to the Self ID field and turn the [JOG] wheel to change the value.
2. Press the [DISK] key.
The Self ID setting is changed and the device information is updated.

►NOTE : For the Self ID number, you must assign a unique number that is not used by other connected SCSI devices. Select an ID number that has an indication of (no device) in the Status field.

Selecting the current disk

When you turn on the power to the DPS16, the internal hard disk is automatically selected as the current disk. However, you can select another external hard disk connected to the SCSI connector as the current disk.

►NOTE : Some types of hard disk cannot be used for recording or playing with the DPS16. Consult the AKAI professional Service Center for information on compatible external hard disks.

Follow the steps below to select a different disk as the current disk.

1. On the Disk List screen, move the cursor to the device you wish to specify as the current disk.

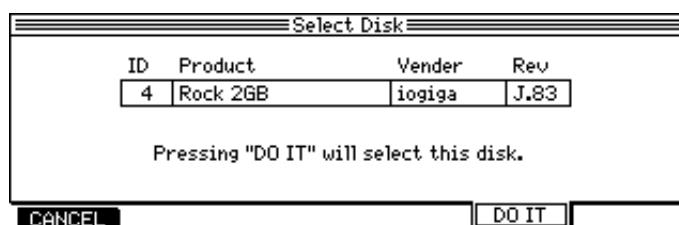
Select a device that has an indication of “RECORDABLE DISK” in the Status field.

ID	Status	Product	Vender	Rev
ATA	NOW SELECTED	HD42658	AKAI	1.00
0	(no device)			
1	BACKUP DISK	SOTODUKE HD	AOI	J.09
2	NOT FORMATED	HD4NPN	ABCD	0234
3	(no device)			
4	RECORDABLE DISK	Rock 2GB	iogiga	J.83
5	DPS16			
6	CD-R/RW	CD8989	EFGH	2.20
7	(Inhibit)			

ex.: A device with the SCSI ID number of 4 is selected.

2. Press the [F6] (SELECT) key.

The following window appears.



3. Press the [F5] (DO IT) key.

The current disk is changed (SCSI ID=4) and the DPS16 loads the Project used most recently on the selected disk, then returns to the Disk List screen.

Formatting a disk

You may format a current disk using one of the following two methods.

■ FORMAT

Formatting is an operation that writes format information to the disk, enabling it to be used on the DPS16 for recording and playing. To use a new disk, you first need to format it. This operation takes some time to complete.

■ ERASE

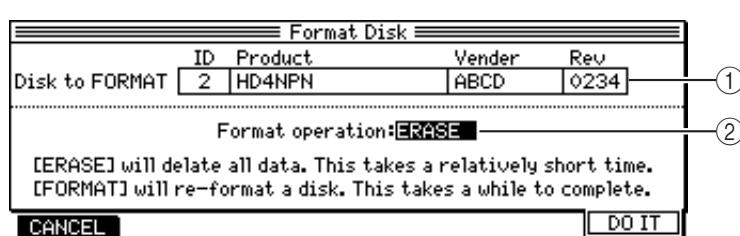
Erasing is an operation that deletes all data on a formatted disk. This operation takes a relatively short time.

⚠ CAUTION : In either case, please note that all information on the disk will be deleted. Proceed carefully so that important data is not lost.

✓ TIP : You may be able to correct a hard disk that frequently has writing/reading errors by formatting the disk.

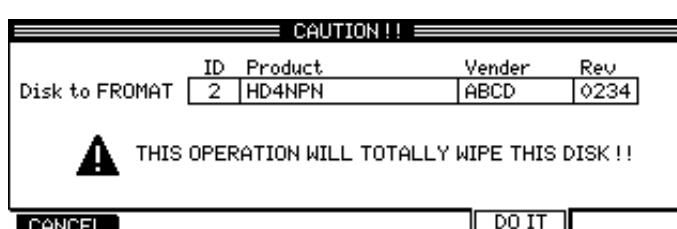
Follow the steps below to format or erase the disk.

1. **On the Disk List screen, move the cursor to select a hard disk (ATA or SCSI 0-7) to format or erase.**
Select a device that has an indication of NOW SELECTED, NOT FORMATTED, or RECORDABLE DISK in the Status field. To format an unformatted hard disk, select a NOT FORMATTED device.
2. **Press the [F1] (FORMAT) key.**
The following screen appears.



- ① **Disk to FORMAT**
Indicates the information on the hard disk selected in step 1 (ID, product name, manufacturer, and version number).
- ② **Format operation**
Enables you to select a type of formatting (FORMAT/ERASE).

3. **Move the cursor to the Format operation field (②), and use the [JOG] wheel to select FORMAT or ERASE.**
4. **Press the [F6] (DO IT) key.**
The DPS16 displays the screen that asks you for confirmation to execute the format/erase operation.
Press the [F1] (CANCEL) key to cancel the operation.



5. **Press the [F5] (DO IT) key to execute the format/erase operation.**
The DPS16 performs the format or erase operation. When the operation is completed, the screen used to create a new Project automatically appears.

►►NOTE : Refer to page 112 for more information on how to create a new Project.

When a new Project is created, the DPS16 displays the Main screen that indicates the formatted disk as the current disk and the new Project as the current Project.

Defragmenting a disk

Repeated recording and edit operations on the DPS16 fragments audio data written on the disk. If this fragmentation is significant, the **DISK BUSY** error message appears and recording or playback may be interrupted because accessing data on the disk takes more time. The DPS16 enables you to re-align the fragmented audio data (“defragmentation”) to solve or avoid this problem.

✓ TIPS:

- When you record and edit on the DPS16 repeatedly, an alarm message may appear, indicating that there is not enough space on the disk even though the hard disk has enough space available. This means that the internal audio management table (an area where audio data is managed) on the DPS16 does not have enough memory space. In this case, you can defragment the disk to reduce the used space in the audio management table and regain available space on the disk.
- You can check the disk busy field to see how frequently a disk is accessed. If the field appears as shown below often, fragmentation is severe. Defragment the disk as soon as possible.



►NOTE : When you defragment a disk, all Undo data stored on the disk will be erased. Defragment disks regularly after a recording session or editing project is completed.

The following are two defragmenting methods.

■ JOIN

This method copies a series of small bits of audio data (that exist consecutively in time) in a blank area to make one continuous unit of data. This method cannot eliminate fragmentation of blank areas. Also, if the blank area is not large enough, defragmentation does not work. This operation takes a relatively short time. If time is an issue or you defragment a disk regularly, try this method of organizing data.

■ FULL

This method rewrites all audio data continuously so that blank areas are not scattered on the disk. This method completely eliminates fragmentation of both audio data and blank areas. When you finish a recording session or editing project, or the **DISK BUSY** error message appears after you perform JOIN defragmentation, try this method.

►NOTE : Before defragmenting the disk

Backing up and reloading a Project has the same effect as defragmenting a disk. That is, when you back up and reload a Project, “disk busy” problem will be resolved. To protect your important data, first try the backup and reload operation. To perform the defragmentation operation, the DPS16 uses a free space on the disk to copy the existing data. Therefore, if an unexpected error occurs on the disk, the data may become unreadable in the worst case.

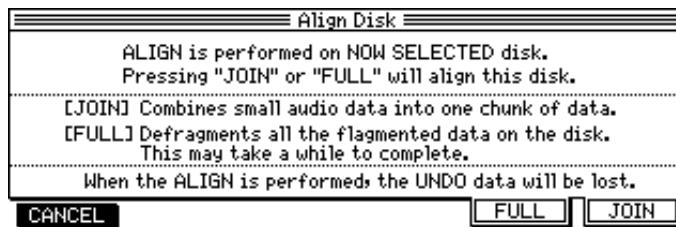
Follow the steps below to defragment audio data.

1. On the Disk List screen, move the cursor to the hard disk you wish to defragment.

Select from the devices with the NOW SELECTED or RECORDABLE DISK indication in the Status field.

2. Press the [F5] (ALIGN) key.

The following screen appears.



3. Press the [F5] (FULL) or [F6] (JOIN) key, depending on the method chosen.

The DPS16 executes the selected defragmentation method (FULL or JOIN).

Press and hold the [F1] (CANCEL) key down to cancel the operation.

4. When defragmentation is completed, the following screen appears.

Press any key to return to the Disk List screen.



Copying data on the disk

You may copy all data on the current disk to another disk. This is useful when you wish to back up the current condition of the current disk.

⚠ CAUTION : Data existing on the destination disk will be deleted and replaced with the copy source data.

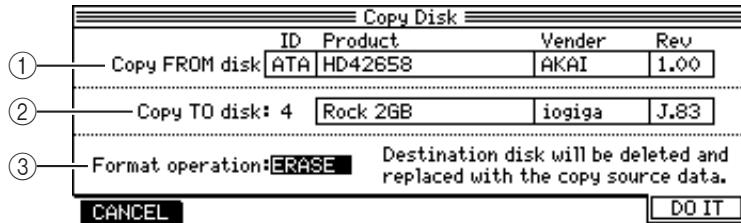
►NOTE :

- Make sure that the available space of the destination disk is larger than the size of the copy data. (You can check the size of the used space of the current disk in the Current Disk field of the Disk List screen.)
- The contents and position of the source data are reflected on the destination “disk”. For example, Undo data stored on the copy source disk will be copied to the destination disk. Also, if the source disk has fragmentation, it will be reflected on the destination disk.

Follow the steps below to copy data on the current disk. This operation takes time to complete.

1. Select the copy source hard disk as the current disk. (Refer to “Selecting the current disk” on page 127.)
2. Press the [F4] (COPY) key.

The following screen appears.



① Source Disk

Indicates the information of the current (source) disk (ID, product name, manufacturer, and version number).

② Destination Disk

Enables you to select the ID number of a destination hard disk.

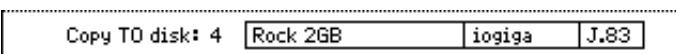
③ Format operation

Enables you to select a formatting method used for the destination hard disk (FORMAT or ERASE).

3. Move the cursor to the Destination Disk field and turn the [JOG] wheel to select the ID number of the destination disk.

Select from among the devices with an indication of NOT FORMATTED or RECORDABLE DISK in the Status field.

When you select the ID number, the device information (product name, manufacturer, and version number) appears on the right of the ID number.

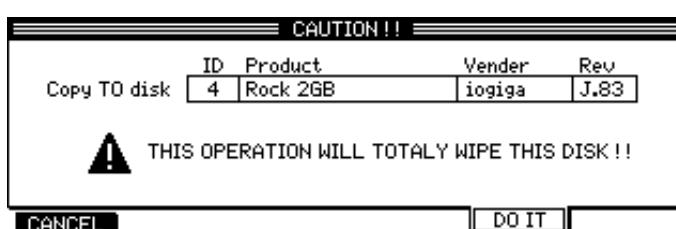


4. Set the Format operation field (③) to FORMAT or ERASE. If you have selected an unformatted disk (NOT FORMATTED) in step 3, select FORMAT here.

5. Press the [F6] (DO IT) key.

The DPS16 displays the screen that asks you for confirmation to format the destination disk.

Press the [F1] (CANCEL) key to cancel the operation.



6. Press the [F5] (DO IT) key.

The DPS16 formats the destination hard disk, then copies data to the disk. When the copy operation is completed, the display returns to the Disk List screen.

Press the [F1] (CANCEL) key to cancel the operation in step 6.

Chapter 12: MIDI Applications

This chapter describes some examples of using the DPS16 via MIDI.

Possible operations using MIDI

You can perform the following operations on the DPS16 via MIDI.

■ Synch operation using the DPS16 and external devices

The DPS16 can synchronize external devices (MIDI sequencer, another DPS16, etc.).

- Synchronizing an external device to the DPS16 (MTC) → page 132
- Synchronizing an external device to the DPS16 (MIDI clock) → page 134
- Synchronizing the DPS16 to an external device (MTC) → page 137

■ Controlling the recording/playback operation on the DPS16 from an external device

MMC (MIDI Machine Control) enables you to control the transport function and the recording track selection/de-selection on the DPS16 from a connected external device.

- Controlling recording/playback on the DPS16 from an external device (MMC) → page 138

■ Automating the mixing operation

Recording and playing the snapshots (mix settings) and the real-time operations of the faders and controls of the DPS16 on the MIDI sequencer enables for mix automation.

- Recording and playing the snapshots on the MIDI sequencer → page 139
- Recording and playing the mix operations on the MIDI sequencer → page 141

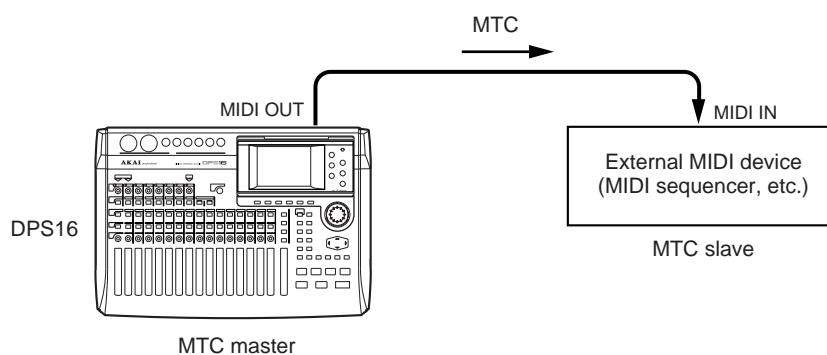
Synchronizing an external device to the DPS16 (MTC)

MTC (MIDI timecode) contains timing information expressed in absolute time (hour/minute/second/frame). In this setup, MTC is supplied from the DPS16's MIDI THRU/OUT connector to a connected MIDI sequencer to sync the sequencer to the transport section of the DPS16. This setup is useful when you wish to sync the DPS16 to a MIDI sequencer with frame-accurate precision.

Follow the steps below to use MTC to synchronize the MIDI sequencer to the DPS16.

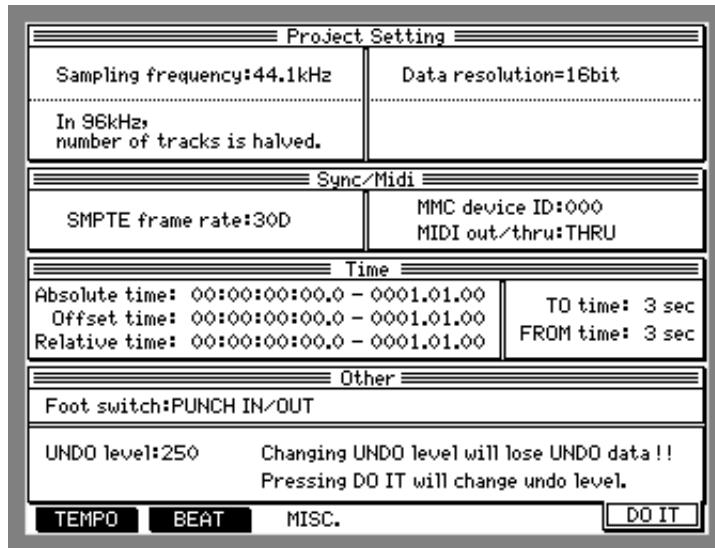
- 1. Use a MIDI cable to connect the DPS16's MIDI OUT/THRU connector and the MIDI sequencer's MIDI IN connector .**

✓ TIP : A device transmitting MTC (DPS16 in this case) is called an “MTC master”, and a device receiving MTC (MIDI sequencer in this case) is called an “MTC slave”.



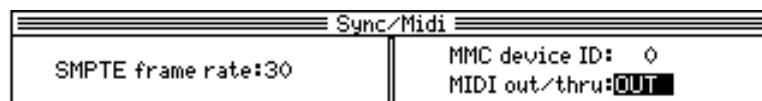
2. Press the [SETUP] key to recall Setup mode and press the [F3] (MISC.) key.

The following screen appears.



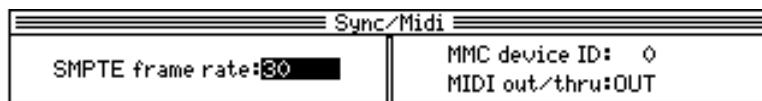
3. Move the cursor to the MIDI out/thru field, and turn the [JOG] wheel to set the field to “OUT”.

In this field, you can select whether the MIDI OUT/THRU connector will be used as a MIDI OUT (that is, the MIDI data of the DPS16 is output), or used as a MIDI THRU (that is, signals received at the MIDI IN connector are output as is). In this example, set the field to “OUT” since the DPS16 must transmit a sync signal (MTC) generated inside the unit.



4. On the same screen, move the cursor to the SMPTE frame rate field and turn the [JOG] wheel to set the MTC frame rate.

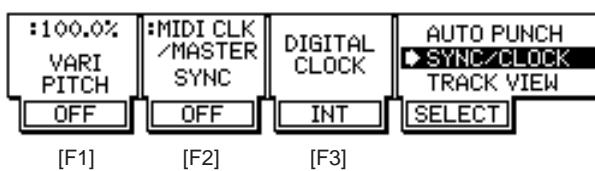
- To perform a precise sync operation, be sure to match the frame rates of the MTC master and the MTC slave. The frame rate of the MTC transmitted from the DPS16 can be selected from among 24, 25, 30 (30 non-drop), 29.97, and 30D (30 drop).
- The frame rate set here affects the value on the time counter and time fields.



5. Press the [MAIN SCREEN] key to recall the Main screen.

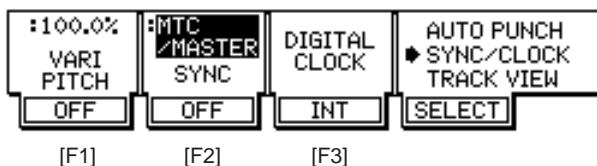
6. Press the [F4] (SELECT) key, then turn the [JOG] wheel to select the SYNC/CLOCK function.

The following fields appear in the positions of the [F1]–[F3] keys.



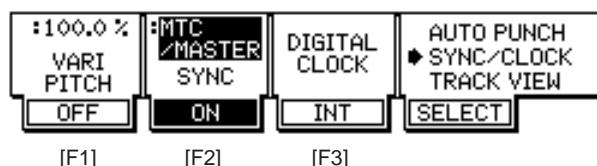
7. Move the cursor to the [F2] key (SYNC parameter) and turn the [JOG] wheel to select “MTC/MASTER”.

The SYNC parameter enables you to select a type of synchronization of the DPS16 and the external device. If you select “MTC/MASTER”, the MTC is selected as a sync signal and the DPS16 becomes the MTC master.



8. Press the [F2] key to set the SYNC parameter to “ON”.

Now the DPS16 can transmit the MTC from the MIDI OUT/THRU connector .



9. Set up the MIDI sequencer so that it will synchronize to an external MTC.

10. Start recording or playback on the DPS16.

When the DPS16 starts recording or playback, the MIDI sequencer starts syncing to the MTC transmitted from the DPS16.

✓ TIP : Since MTC does not include tempo change information, the MIDI sequencer refers to its own tempo even if it operates as an MTC slave. In this case, if the tempo change information (and time signature information) of the MIDI sequencer and the DPS16 do not match, the BBC counter indication on the DPS16 will slip from the bar indication on the MIDI sequencer. For more information on how to set the tempo change and time signature information of the DPS16, see page 104, 105.

Synchronizing an external device to the DPS16 (MIDI clock)

This section explains how to synchronize an external device to the DPS16 using the MIDI clock (plus Song Position Pointer). The MIDI clock is timing information in which one beat consists of 24 clocks. Song Position Pointer is position information expressed as bar/beat/clock values.

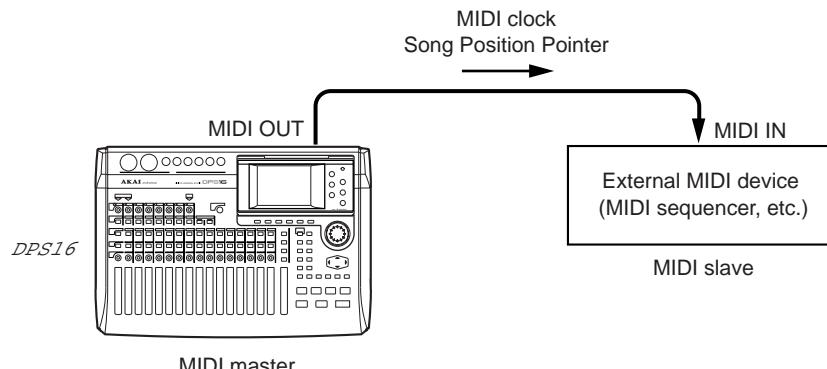
You can synchronize the MIDI sequencer to the DPS16 by supplying MIDI clock output from the MIDI OUT/THRU connector on the DPS16 to the MIDI sequencer.

This setup is useful when you are using a device that supports only the MIDI clock as a sync signal, or when you wish to specify the locate position and edit region using bar/beat/clock values during the sync operation.

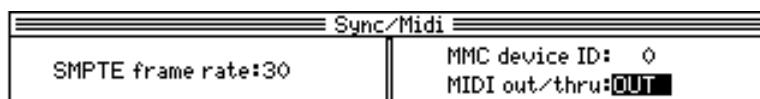
►NOTE : While the MIDI sequencer and the DPS16 are synchronizing via the MIDI clock, the MIDI sequencer follows the DPS16's tempo change information. Therefore, you must set the tempo change information on the DPS16. Also, if the time signature information of the DPS16 and the MIDI sequencer do not match, the playback positions of both devices may slip away from each other when the sync operation is resumed in the middle of the song. To avoid this, you must set time signature information on the DPS16 that matches the MIDI sequencer's time signature information. For more information on how to set the tempo change and time signature information of the DPS16, see page 104, 105.

1. Use a MIDI cable to connect the DPS16's MIDI OUT/THRU connector and the MIDI sequencer's MIDI IN connector.

✓ TIP : A device transmitting MTC (DPS16 in this case) is called an “MTC master”, and a device receiving MTC (MIDI sequencer in this case) is called an “MTC slave”.

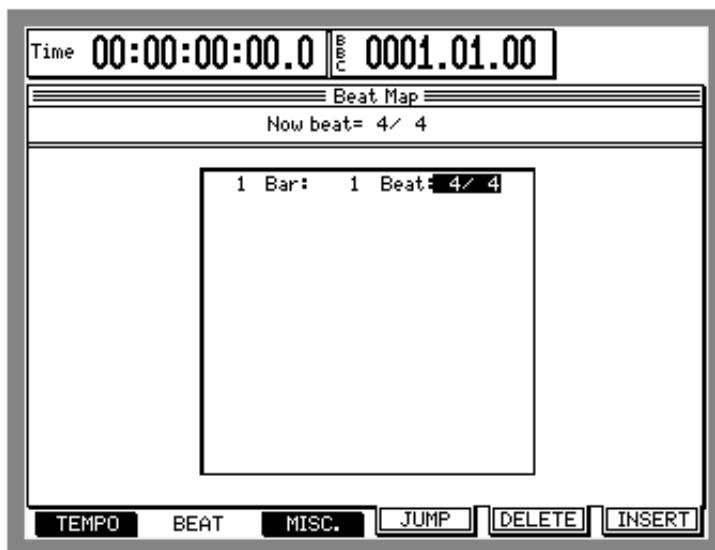


2. Press the [SETUP] key to recall Setup mode and press the [F3] (MISC.) key.
3. Move the cursor to the MIDI out/thru field, and turn the [JOG] wheel to set the field to “OUT”.



4. Press the [F2] (BEAT) key on the same Setup mode screen.

The DPS16 displays the screen where you can set a beat map (Project's time signature information).

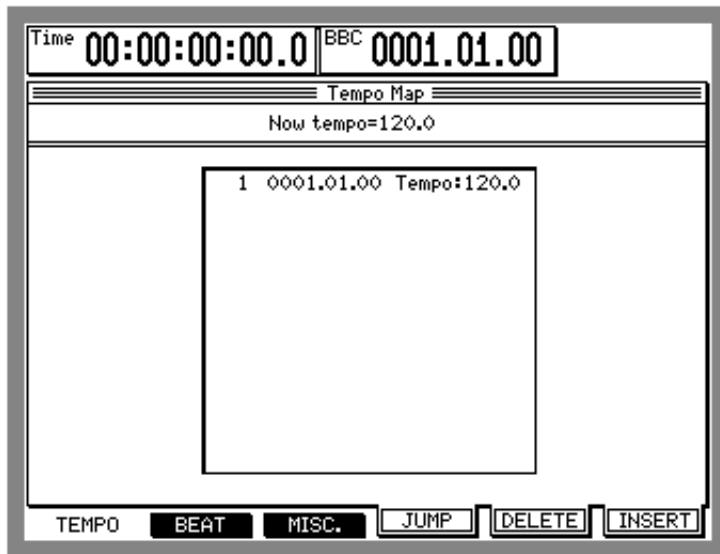


5. Move the cursor to the Beat field and turn the [JOG] wheel to set the initial time signature of the song.

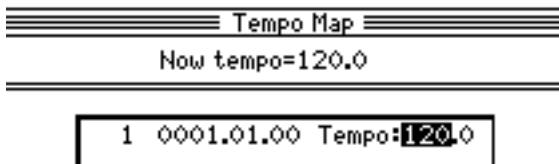
You can set the time signature in the range between 1/4 and 32/32. If the time signature changes during the song, press the [F6] (INSERT) key to insert new time signature information, and adjust the position and the time signature value. (See page 104.)

6. Press the [F1] (TEMPO) key on the same screen.

The DPS16 displays the screen where you can set a tempo map (Project's tempo information).



7. Move the cursor to the TEMPO field and turn the [JOG] wheel to set the initial tempo of the song.

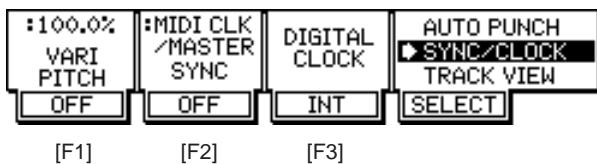


You can set the tempo in the range between 30 and 300. If a tempo changes during the song, press the [F6] (INSERT) key to insert new tempo information, and adjust the position and value of the tempo. (See page 105.)

8. Press the [MAIN SCREEN] key to recall the Main screen.

9. Press the [F4] (SELECT) key, then turn the [JOG] wheel to select the SYNC/CLOCK function.

The following fields appear in the positions of the [F1]–[F3] keys.

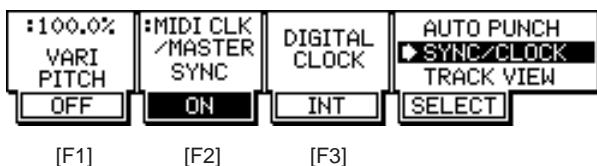


10. Move the cursor to the [F2] key (SYNC parameter) and turn the [JOG] wheel to select “MIDI CLK/MASTER”.

MIDI clock is selected as a sync signal transmitted from the DPS16.

11. Press the [F2] key to set the SYNC parameter to “ON”.

Now the DPS16 can transmit the MIDI clock and the Song Position Pointer from the MIDI OUT connector .



12. Set the MIDI sequencer so that it will synchronize to the external MIDI clock.

13. Start recording or playing back on the DPS16.

When you start recording or playing back on the DPS16, it will transmit MIDI clock, and the MIDI sequencer will synchronize. When you perform a locate operation on the DPS16, it transmits Song Position Pointer, and the MIDI sequencer will synchronize from the corresponding point in a song.

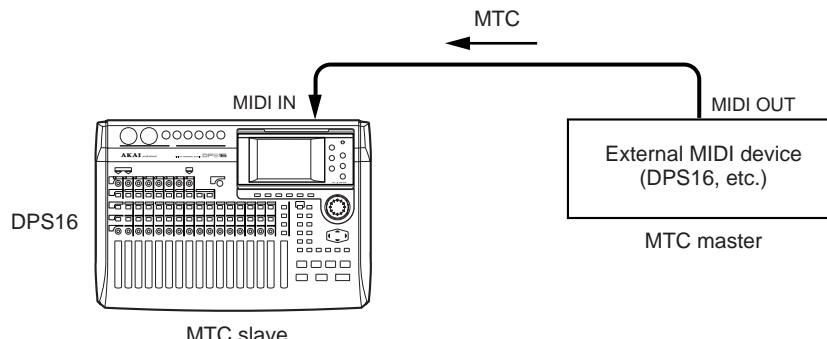
Synchronizing the DPS16 to an external device (MTC)

MTC (MIDI timecode) is supplied from an external MIDI device to the DPS16, which will synchronize to the MIDI device operation. This method is useful when you wish to sync the DPS16 to a device that cannot be used as a slave device in the sync system (such as an analog MTR).

Follow the steps below to synchronize the DPS16 to an external device.

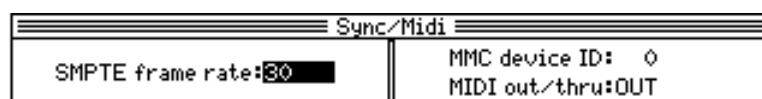
- 1. Use a MIDI cable to connect the DPS16's MIDI IN connector and the MIDI device's MIDI OUT connector.**

The external device that transmits MTC becomes the MTC master, and the DPS16 that receives MTC becomes an MTC slave.

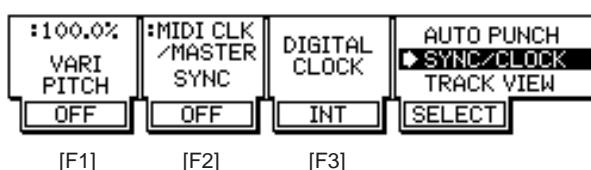


- 2. Press the [SETUP] key to recall Setup mode, and press the [F3] (MISC.) key.**

- 3. Move the cursor to the SMPTE frame rate, and select a frame rate of MTC (24, 25, 30, 29, 97, 30D).**

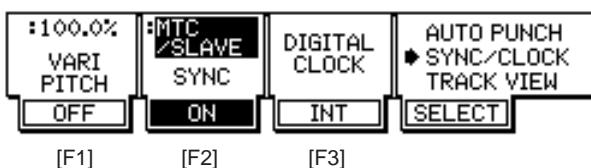


- 4. Press the [F4] (SELECT) key on the Main screen, then turn the [JOG] wheel to select the SYNC/CLOCK function.**



- 5. Move the cursor to the [F2] key (SYNC parameter) and select "MTC/SLAVE". Then press the [F2] key to set the SYNC parameter to "ON".**

Now the DPS16 synchronizes to an MTC signal received at the MIDI IN connector.



- 6. Set up the external device so that it will transmit MTC from the MIDI OUT connector, and start playing the device.**

When the DPS16 receives MTC, it starts playing, syncing to the MIDI device.

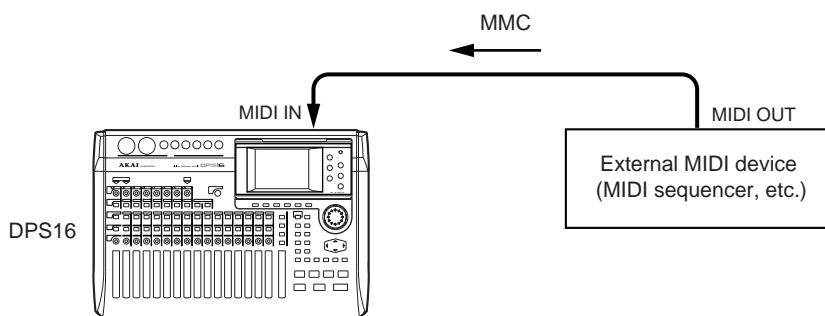
✓ TIP : If the MTC supplied from the external device passes through the zero point (00:0:00:00,0) of the DPS16's absolute time, the DPS16 will stop at the zero point. If you wish to have the DPS16 operate through the zero point, set the offset in relative time in Setup mode, and set the TIME DISPLAY parameter of the Q-Link function to "RELA" (see pages 102 and 108).

Controlling the DPS16 remotely from an external device (MMC)

MMC (MIDI Machine Control) is MIDI information that enables you to remotely control MIDI devices (other than MIDI musical instrument), such as the DPS16. To control the selection and de-selection of recording tracks and the transport operation of the DPS16 remotely, you must send MMC from an external device (such as a computer-based MIDI sequencer) to the DPS16.

Follow the steps below to control the recording and playback operation of the DPS16 from an external device via MMC.

- 1. Use a MIDI cable to connect the MIDI IN connector of the DPS16 and the MIDI OUT connector of an external device.**



- 2. Press the [SETUP] key to recall Setup mode, then press the [F3] (MISC.) key.**
- 3. Move the cursor to the MMC device field, and specify the device ID (0–126) of the external device that transmits MMC.**



- A device ID is an identification number that enables the DPS16 to identify each device connected to the system via MIDI. The ID of the device that transmits MMC should match the ID of the device that receives MMC so that you can control the DPS16 via MMC. Refer to the manual that came with the external device or software for more information on setting the device ID on the corresponding device.
- If the device ID numbers match, the DPS16 can always receive MMC.

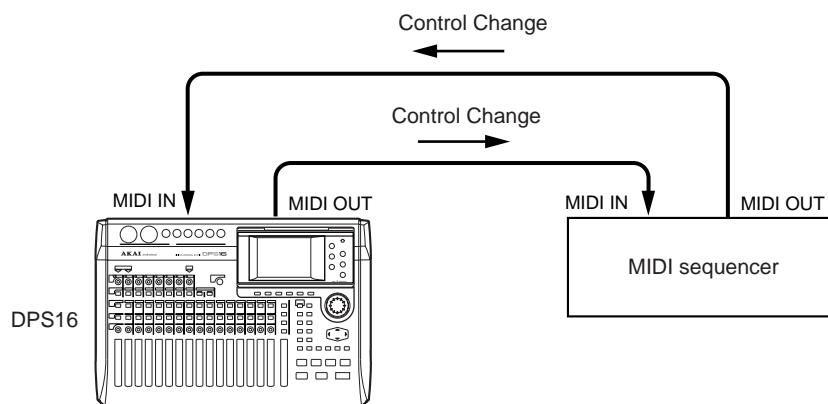
✓ TIP : The DPS16 and a MIDI sequencer can synchronize each other while you are controlling the DPS16 for recording or playback from the MIDI sequencer.

Recording and playing the DPS16's snapshot on a MIDI sequencer

The DPS16 can transmit and receive a mix snapshot (mix parameter settings) as a series of MIDI Control Change messages. If you record this snapshot to a MIDI sequencer, you can play back the same mix settings each time you play the MIDI sequencer.

Follow the steps below to record and play a mix snapshot on a MIDI sequencer.

1. Use MIDI cables to connect the MIDI IN/OUT connectors of the DPS16 to the MIDI OUT/IN connectors of a MIDI sequencer.



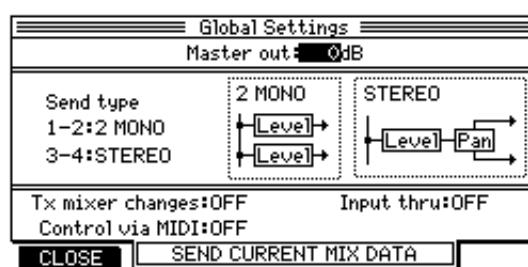
2. Press the [F3] (MISC.) key in Setup mode and make sure that the MIDI out/thru field on the screen is set to "OUT".

If it is set to "THRU", move the cursor to the field and set to "OUT".

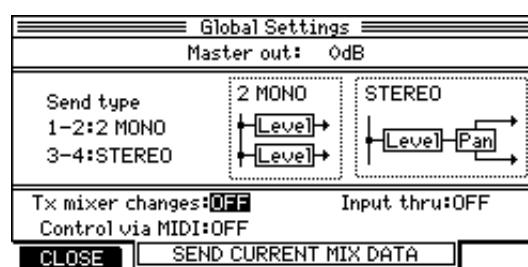
3. Play the DPS16 and create a mix to record as a snapshot.

4. Press the [F3] (GLOBAL) key in Mixer mode.

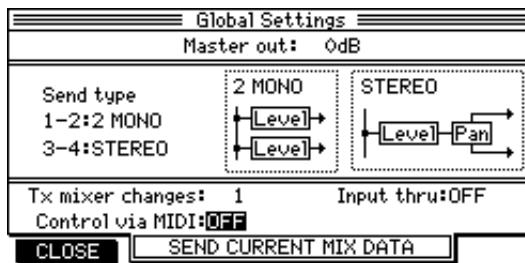
The following screen appears.



5. Move the cursor to the Tx mixer change field and turn the [JOG] wheel to select a DPS16's MIDI channel (1–16) to transmit the Control Change messages.



6. On the same screen, move the cursor to the Control via MIDI field, and turn the [JOG] wheel to select a DPS16 MIDI channel (1–16) to receive the Control Change messages.



Tip: To avoid confusion, assign different channels to the MIDI receive channel (specified in the Control via MIDI field) and the MIDI channel that is used to switch the internal effect settings.

»Note:

- If the Control via MIDI field and Tx mixer change field are set to OFF, Control Change messages are not transmitted or received.
- Before recording or playing the snapshot on the MIDI sequencer, make sure that the Input thru field on the screen shown in step 6 is set to "OFF". If the field is set to "ON", MIDI messages may loop between the DPS16 and the MIDI sequencer. (See page 72 for more information on the Input thru field.)

7. Set the MIDI sequencer so that it will record MIDI messages transmitted from the DPS16.

»Note: At this time, turn off the MIDI thru function of the MIDI sequencer (the function that allows MIDI messages received at the MIDI IN connector to be output from the MIDI OUT connector unaltered).

8. Start recording on the MIDI sequencer.

9. Press the [F2]–[F4] (SEND CURRENT MIX DATA) keys while the screen in step 5 is displayed.

The current settings (snapshot) of the mix parameter are transmitted as a series of Control Change messages.

»Note: Do not stop the MIDI sequencer during transmission of the Control Change messages.

10. When transmission is complete, stop the MIDI sequencer.

11. If you wish to recall the recorded snapshot back to the DPS16, set the MIDI transmit channel of the MIDI sequencer track (that recorded the Control Change messages) to the same number as the MIDI receive channel of the DPS16 as specified in step 6.

12. Play back the MIDI sequencer.

The MIDI sequencer transmits the Control Change messages to the DPS16, which reproduces the mix settings created in step 3.

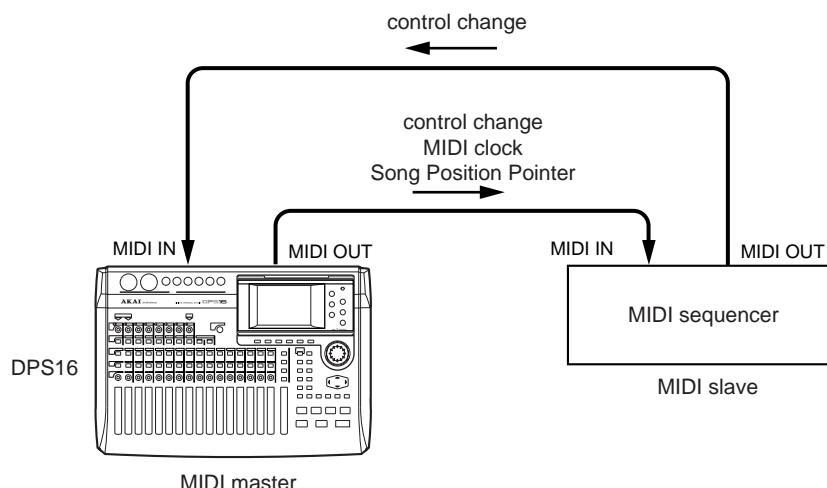
»Note: Mix parameters that can be transmitted as the Control Change messages include the LEVEL/PAN parameters of TRACK MIX channels (1–16) and INPUT MIX channels (1–8, DL/DR), and the MASTER LEVEL parameter. Other mix parameters cannot be recorded as a snapshot.

Recording and playing back a mix automation

The operations of the channel faders, [MASTER] fader, and [PAN] controls on the top panel can be transmitted as the Control Change messages. Recording and playing back these Control Change messages on the MIDI sequencer will enable you to automate mixing operations on the DPS16.

Follow the steps below to record and play a mix automation.

1. Use MIDI cables to connect the MIDI IN/OUT connectors of the DPS16 to the MIDI OUT/IN connectors of a MIDI sequencer.

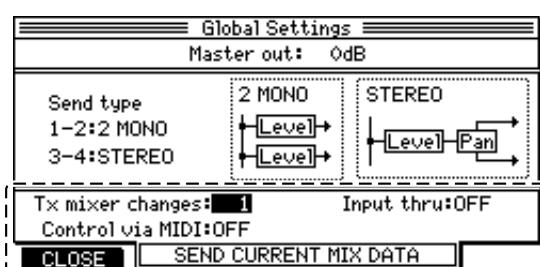


2. Set up the DPS16 and the MIDI sequencer for a sync operation, following the instructions under "Synchronizing an external device to the DPS16 (MIDI Clock)" on page 134.

►NOTE : You can also use MTC to synchronize the DPS16 with a MIDI sequencer and record and play back Control Change messages for mix automation.

3. Press the [F3] (GLOBAL) key in Mixer mode.

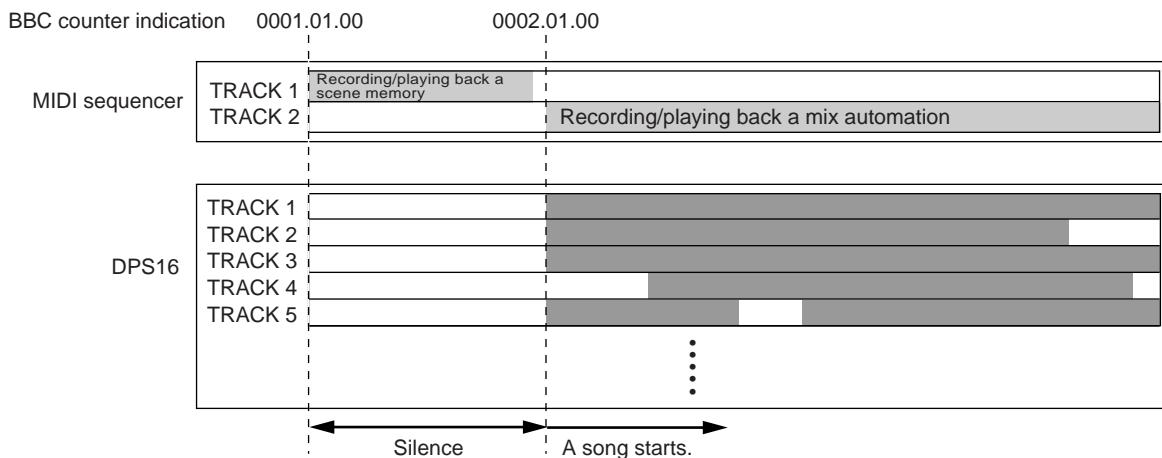
4. Select the DPS16 MIDI channels (1–16) that transmit and receive Control Change messages in the Control via MIDI field and Tx mixer changes field.



►NOTE : Before recording or playing the mix operation on the MIDI sequencer, make sure that the Input thru field on the screen shown in step 4 is set to "OFF". If the field is set to "ON", MIDI messages may loop between the DPS16 and the MIDI sequencer. (See page 72 for more information on the Input thru field.)

5. Create a mix beginning at the start position of the song on the DPS16, and record the snapshot in the top position of the MIDI sequencer. (See page 139.)

►NOTE : When a mix automation is recorded, this snapshot will become the default value of the mix parameters. Therefore, this snapshot should be recorded in a position before the start point of the mix automation recording.



6. Set up the MIDI sequencer as instructed below, and set it in record standby mode.

- ① Set the MIDI sequencer so that it will record MIDI messages transmitted from the DPS16.
- ② Turn off the MIDI thru function.
- ③ Set the sequencer so that it will synchronize to the external MIDI clock.

TIP : To prevent the recorded snapshot from being erased from the sequence track, it is recommended that a track that did not record a snapshot be selected.

7. Start playing the DPS16 from the beginning.

The DPS16 transmits the MIDI clock to the MIDI sequencer, and the MIDI sequencer synchronizes to the clock. If you play the song from the top, the snapshot will be sent to the DPS16, and the mix parameters on the DPS16 will be changed accordingly.

8. Use the channel faders, [PAN] controls, and [MASTER] fader on the top panel, or use Mixer mode to adjust the mix parameters.

As the mix parameter settings change, the corresponding Control Change messages are output from the MIDI OUT connector and recorded on the MIDI sequencer.

NOTE : Mix parameters that can be transmitted as the Control Change messages include only the LEVEL/PAN parameters of TRACK MIX channels (1–16) and INPUT MIX channels (1–8, DL/DR), and the MASTER LEVEL parameter.

9. When recording of the mix automation is completed, stop the DPS16 and MIDI sequencer.

10. To play back the mix automation, perform the following settings (①–③) on the MIDI sequencer, and set it in playback standby mode.

- ① Set the track that recorded the mix automation for playback.
- ② Match the MIDI transmit channel of that track to the DPS16's MIDI receive channel specified in step 4 (Control via MIDI field setting).
- ③ Set up the sequencer so that it will synchronize to an external MIDI clock.

11. Play the DPS16 from the beginning.

The DPS16 transmits MIDI clock to the MIDI sequencer, and the MIDI sequencer synchronizes the DPS16. After sending the snapshot to the DPS16, the MIDI sequencer sends the mix automation data. The DPS16 changes the mix parameter settings as the song proceeds.

TIP : The table on the next page shows the DPS16's mix parameters and the corresponding Control Change numbers. You can enter this Control Change data directly into the MIDI sequencer to create a mix automation.

DPS16 MIDI Control Change Assign Table

Control No.	Channel	Parameter
1	TRACK MIX Ch 1	LEVEL
2	TRACK MIX Ch 2	LEVEL
3	TRACK MIX Ch 3	LEVEL
4	TRACK MIX Ch 4	LEVEL
5	TRACK MIX Ch 5	LEVEL
6	TRACK MIX Ch 6	LEVEL
7	TRACK MIX Ch 7	LEVEL
8	TRACK MIX Ch 8	LEVEL
9	TRACK MIX Ch 9	LEVEL
10	TRACK MIX Ch 10	LEVEL
11	TRACK MIX Ch 11	LEVEL
12	TRACK MIX Ch 12	LEVEL
13	TRACK MIX Ch 13	LEVEL
14	TRACK MIX Ch 14	LEVEL
15	TRACK MIX Ch 15	LEVEL
16	TRACK MI ChX 16	LEVEL
17	INPUT MIX Ch 1	LEVEL
18	INPUT MIX Ch 2	LEVEL
19	INPUT MIX Ch 3	LEVEL
20	INPUT MIX Ch 4	LEVEL
21	INPUT MIX Ch 5	LEVEL
22	INPUT MIX Ch 6	LEVEL
23	INPUT MIX Ch 7	LEVEL
24	INPUT MIX Ch 8	LEVEL
25	INPUT MIX Ch DL	LEVEL
26	INPUT MIX Ch DR	LEVEL
27	TRACK MIX Ch 1	PAN
28	TRACK MIX Ch 2	PAN
29	TRACK MIX Ch 3	PAN
30	TRACK MIX Ch 4	PAN
31	TRACK MIX Ch 5	PAN
32	TRACK MIX Ch 6	PAN
33	TRACK MIX Ch 7	PAN
34	TRACK MIX Ch 8	PAN
35	TRACK MIX Ch 9	PAN
36	TRACK MIX Ch 10	PAN
37	TRACK MIX Ch 11	PAN
38	TRACK MIX Ch 12	PAN
39	TRACK MIX Ch 13	PAN
40	TRACK MIX Ch 14	PAN
41	TRACK MIX Ch 15	PAN
42	TRACK MIX Ch 16	PAN
43	INPUT MIX Ch 1	PAN
44	INPUT MIX Ch 2	PAN
45	INPUT MIX Ch 3	PAN
46	INPUT MIX Ch 4	PAN
47	INPUT MIX Ch 5	PAN
48	INPUT MIX Ch 6	PAN
49	INPUT MIX Ch 7	PAN

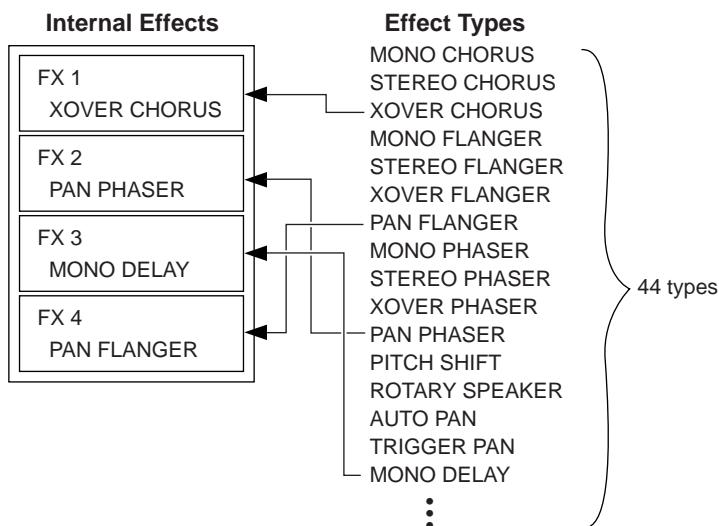
Control No.	Channel	Parameter
50	INPUT MIX Ch 8	PAN
51	INPUT MIX Ch DL	PAN
52	INPUT MIX Ch DR	PAN
53	—	—
•	•	•
•	•	•
•	•	•
100	—	—
101	MASTER LEVEL	
102	—	—
•	•	•
•	•	•
•	•	•
127	—	—

Chapter 13: Using the Effects

You can use various types of the DPS16's built-in effects (optional). This chapter describes their functions and usage.

DPS16's internal effects

The DPS16 provides four independent effect channels (FX 1–4), offering 44 types of effects (effect types), such as reverb, chorus, and compressor. You can select different effects for FX 1–4 independently, and use the “effect parameters” to adjust the intensity of the effects.



- Selecting effect types (→ page 145)
- Editing effect parameters (→ page 146)
- Effect types and parameters (→ page 157)

You can use the effects in the following two ways.

■ Applying effects using the AUX sends

You can apply effects to the INPUT MIX channels and TRACK MIX channels using four AUX sends. This is especially useful when you wish to apply reverb or delay to multiple channels during mixdown or ping-pong recording.

- Using effects for mixdown (→ page 148)
- Using effects during ping-pong recording (→ page 151)

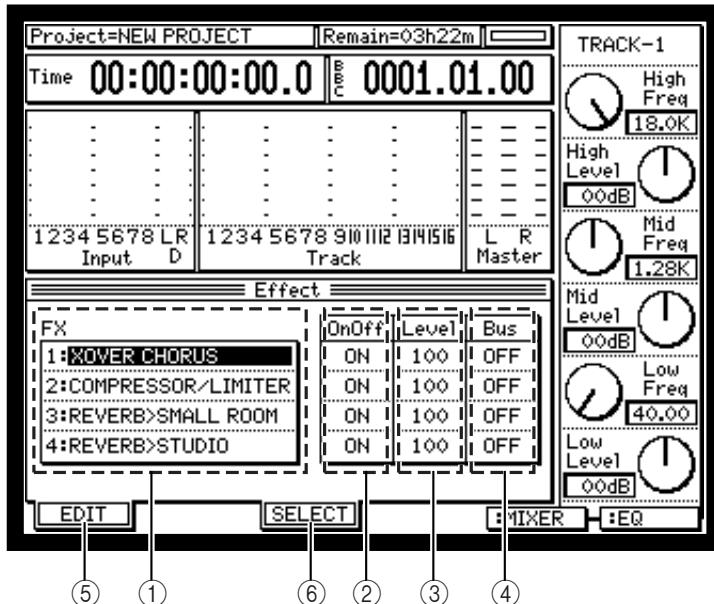
■ Inserting effects to particular channels

You can also apply any effects (FX 1–4) to input signals or to track 1–16 playback signals by inserting them to the INPUT MIX channels or the TRACK MIX channels respectively. This is useful when you wish to record signals to tracks while applying the effects, or apply effects only to specified tracks during mixdown.

- Inserting effects and recording input signals (→ page 154)
- Applying effects to specified playback tracks (→ page 155)

Effect mode screen

In Effect mode, you can set various effect parameters. When you press the [EFFECT] key, the DPS16 enters Effect mode and displays the following Effect screen. The information on this screen is as follows:



① **FX**

This field indicates the effect types selected for FX1–4.

② **OnOff**

This field enables you to turn the effects for FX1–4 ON or OFF. To change the setting, move the cursor to the field and rotate the [JOG] wheel.

③ **Level**

This field enables you to set the level (return level) of signals sent from FX1–4 to the MASTER bus. To change the setting, move the cursor to the field and rotate the [JOG] wheel.

④ **Bus**

In this field, you can select whether or not to send the effects signals to the ping-pong bus (BUS). To change the setting, move the cursor to the field and rotate the [JOG] wheel.

Set this field to “ON” to perform ping-pong recording while applying effects. For more information, refer to “Applying effects during ping-pong recording” on page 151.

⑤ **[F1] (EDIT) key**

This function key is used to recall the effect parameter screen. For more information on how to edit effect parameters, refer to “Editing effect parameters” on page 146.

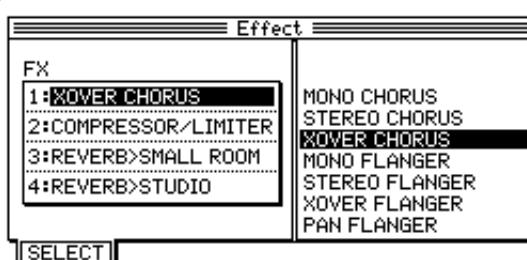
⑥ **[F3] (SELECT) key**

This function key is used to recall the effect type screen. For more information on how to select effect types, refer to “Selecting effect types” below.

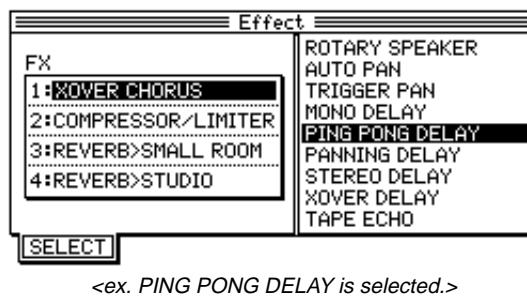
Selecting effect types

1. Move the cursor to the field of the desired effect (FX1–4) on the Effect screen, and press the [F3] (SELECT) key.

Effect types are listed in the field on the right. (For the complete list of available effect types, see “Effect types and parameters” on page 157.)



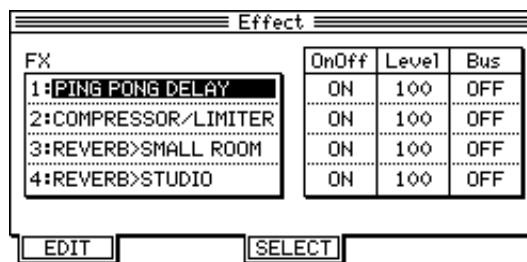
2. Turn the [JOG] wheel to move the cursor to the desired effect type.



<ex. PING PONG DELAY is selected.>

3. Press the [F1] (SELECT) key.

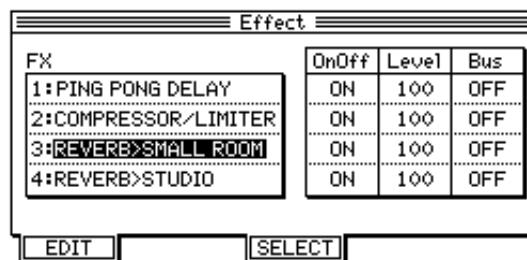
PING PONG DELAY is selected as an effect type for FX1, and the Effect screen is restored.



Editing effect parameters

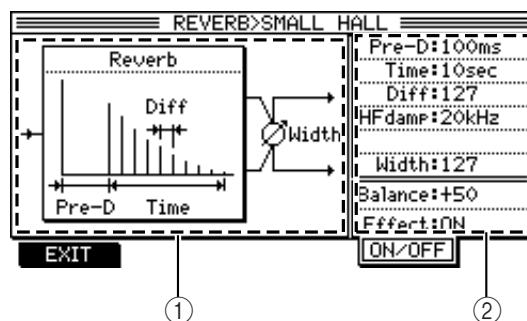
The effect parameters are set to the recommended values. However, you can change these values if necessary.

1. In the FX field, select the target effect (FX1–4) for which you wish to edit the parameters.



2. Press the [F1] (EDIT) key.

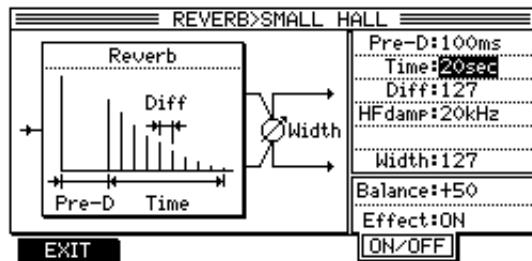
The DPS16 displays the parameters of the target effect type.



(1) This field illustrates the structure of the effects and the parameter function.

(2) This field displays and enables you to change the effect parameter values. (See page 157 for the parameter description of each effect type.)

3. Move the cursor to the target parameter and turn the [JOG] wheel to change the value.



TIPS:

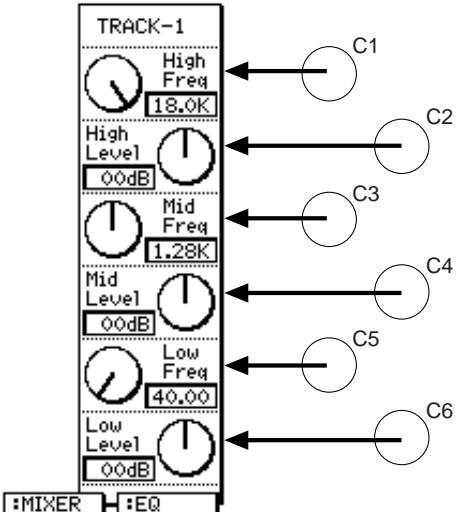
- If you set QLMC's "mode" to "EFFECT" and "panel" to FX1–4, you can adjust some parameters of the target effects using QLMC ([C1]–[C6] knobs).
- You can also use the [F3] key to toggle between two parameter screens of some effect types.

4. When you finish setting the parameters, press the [F1](EXIT) key to return to the Effect screen.

Controlling the effect parameters using the QLMC section

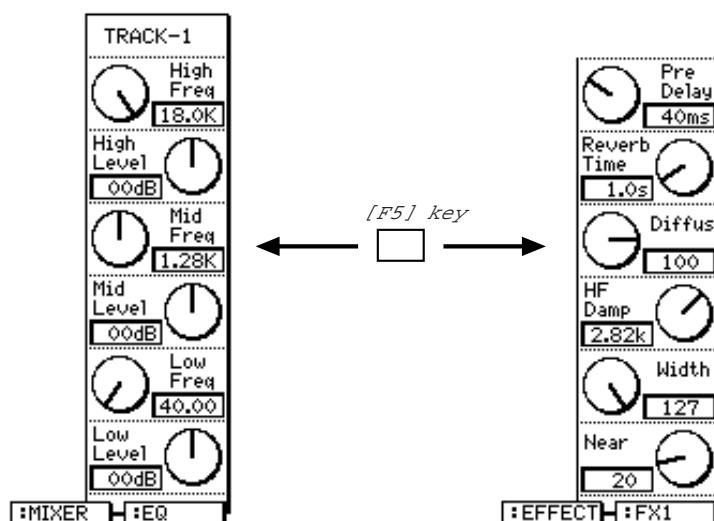
When the Main screen or a Mixer mode screen is displayed, the QLMC (Q-Link Mixer Control) section appears on the right of the display. Six knobs ([C1]–[C6]) on the right side of the display correspond to the parameters shown on the display, and are used to adjust the parameters during recording or playback.

QLMC is a function that directly controls the DPS16's mix parameters and effect parameters. Six knobs ([C1]–[C6]) on the right side of the display correspond to the parameters shown on the display, and are used to adjust the parameters during recording or playback.



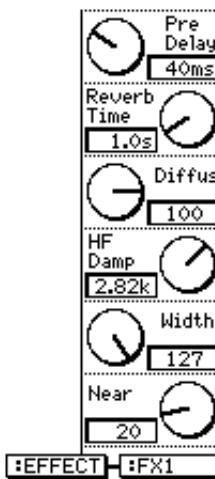
1. While the main screen or a Mixer mode screen is displayed, press the [F5] key to select "EFFECT" as the QLMC mode.

While the main screen or a Mixer mode screen is displayed, pressing the [F5] key enables you to select a QLMC mode from "MIXER" (controlling mixer parameter) and "EFFECT" (controlling effect parameters).



2. Press the [F6] key to select the effect you wish to control.

If you select “EFFECT” as the QLMC mode, pressing the [F6] key repeatedly will select the internal effects (FX1–FX4) in order.



The effect parameters displayed on the screen vary depending on the currently-selected internal effect.

3. Operate the Q-Link knobs ([C1]–[C6] knob) to adjust the effect parameters.

Using effects for mixdown

This section explains the basic operation for applying the FX1 effect (reverb) to the TRACK MIX channel signals via AUX sends and returns. This technique is useful when you wish to apply effects to the playback signals of multiple channels during mixdown.

1. In the Effect screen, move the cursor to FX1 and select the desired reverb effect. (See page 145.)

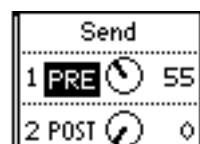
►NOTE : If you apply some effects, such as reverb and delay, via an AUX send, the return signal (signal output from the effect) is sent to the MASTER bus and mixed with the dry sound (signal from the MIX channels). In this case, you must set the effect parameters so that the return signal will be 100% effect signal. As the default setting, all internal reverb and delay effects are set to output only the effect sound.

2. Press the [F2](CHANNEL) key in Mixer mode to recall the Channel View page.



3. Use the [TRACK SELECT] key to select a TRACK MIX channel to which you wish to apply an effect.

4. Move the cursor to the left of the knob displayed in the Send 1 field, and specify whether you wish to send pre-fader signal (PRE) or post-fader signal (POST) to AUX bus 1.

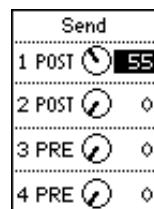


✓TIP : Usually, select the post fader setting for the effect sound, such as reverb and delay, that is added to the original dry sound.

You can set the amount of the effect regardless of the fader setting on the channels for which you selected “PRE”. For example, if you lower the fader setting (Level parameter) to the minimum in order to output only the reverb sound to the bus, select “PRE” for that channel.

5. Move the cursor to the right of the knob displayed in the Send 1 field, and adjust the Send 1 level.

- Set the level to 60 – 70 so that you can hear the reverb effects. Fine-adjust the level later while playing the DPS16.
- Inside the DPS16, AUX buses 1–4 are physically routed to FX 1–4 respectively (except for the effects being used as insert effects).
- As you raise the Send 1–4 parameter values, signals are sent from the corresponding TRACK MIX channels to FX1–4 via AUX buses 1–4.



<ex. Send 1 level is set to 55.>

✓ TIP : If you set QLMC's "mode" to "MIXER" and "panel" to SEND, you can adjust SEND 1–4 level settings using the QLMC ([C1]–[C4] knobs).

6. Repeat steps 3–5 to set the pre/post and send level parameters of other TRACK MIX channels.

7. Press the [MASTER] key to adjust the Send Master 1 level.

Send Master 1–4 parameters enable you to adjust the level of signals routed from AUX buses 1–4 to FX 1–4. Leave the level to 100 (default). Fine-adjust the level later while playing the DPS16.

Channel View			
	Send Master	Effect Return	Bus
1	100	FX 1 100	OFF
2	100	FX 2 100	OFF
Master Level	3 100	FX 3 100	OFF
100	4 100	FX 4 100	OFF

<ex. Send Master 1 level is set to 100.>

8. Adjust the Effect Return 1 level in the same screen.

Inside the DPS16, the outputs of FX1–4 are routed to the MASTER bus L/R. Effect Return 1–4 parameters determine the return level (the level of the effect sound returned from FX1–4 to the MASTER bus L/R).

Leave the level to 100 (default). Fine-adjust the level later while playing the DPS16.

Channel View			
	Send Master	Effect Return	Bus
1	100	FX 1 100	OFF
2	100	FX 2 100	OFF
Master Level	3 100	FX 3 100	OFF
100	4 100	FX 4 100	OFF

<ex. Effect Return 1 is set to 100.>

►NOTE : Effect Return 1–4 parameters in this screen are the same as the Level fields displayed on the Effect screen.

9. Play the DPS16.

The reverb effect sound is mixed with the playback sound on the TRACK MIX channel (for which the send level is adjusted in step 5), and output from the MASTER OUT jack and DIGITAL OUT jack.

- To change the effect amount for each channel, adjust the send level of the target channel in Mixer mode. (See step 5.)
- To change the effect level while keeping the balance between effect sound and dry sound for each channel, adjust the effect return level. (See step 8.)
- If necessary, you can edit the effect sound in Effect mode.

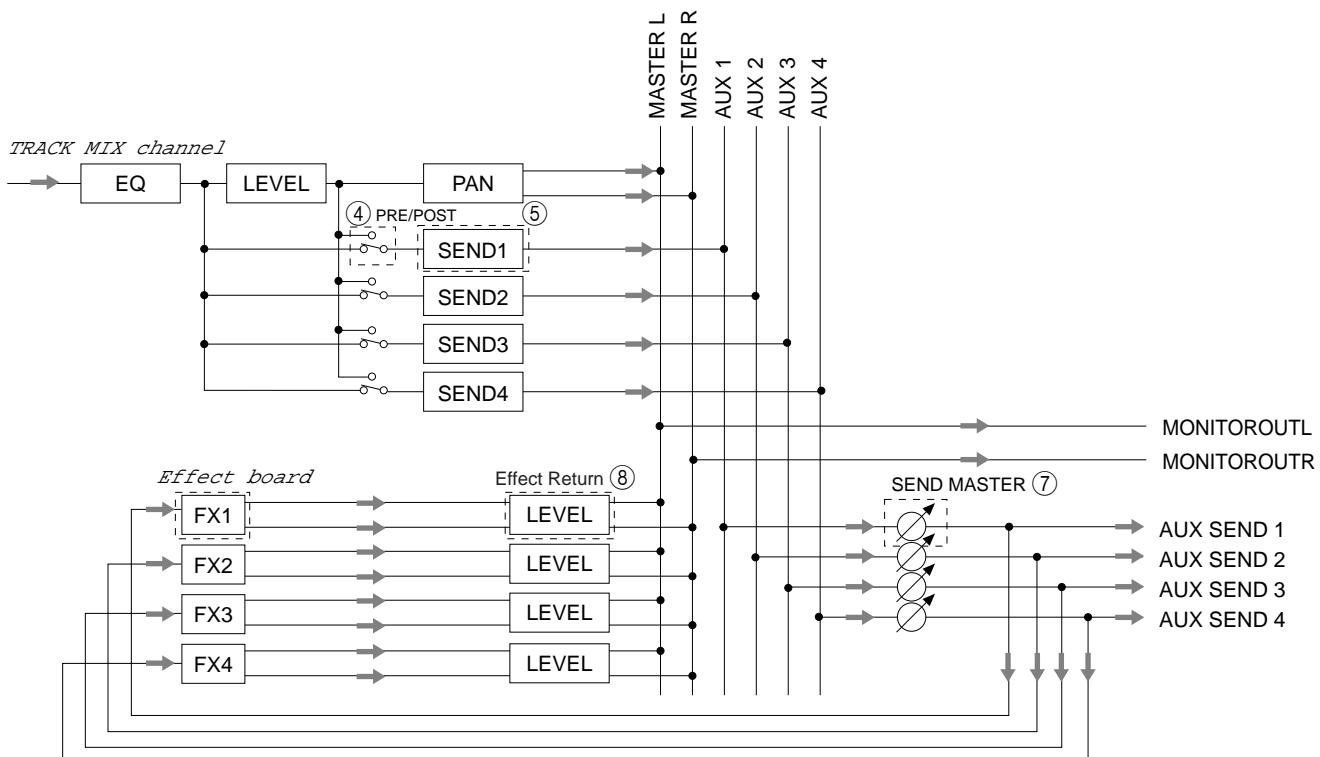
✓ TIPS:

- You can also select PRE or POST and set the send level and send master on the Control View page (which is accessed by pressing the [F1](CONTROL) key in Mixer mode). You can view all channel settings on one Control View page. This is useful when you wish to apply the same effect to many channels. Refer to page 63 for more information on how to use the Control View page.
- Usually, the Effect Return parameter is used to adjust the level of effect sound. However, with some effects, the result may vary depending on the input level. If you are using such an effect on multiple channels, change the SEND MASTER level in Mixer mode (Step 7) to adjust the level of the signal input to the effect while keeping the send level balance on each channel.

► NOTES :

- With stereo effect types, L/R channel signals output from the effects are sent to the MASTER bus L/R.
- With mono effect types, the same signal is sent to the MASTER bus L/R. If the mono effects have a programmable pan setting, you can adjust the L/R balance of the effect sound sent to the MASTER bus L/R.

The following diagram shows the signal flow when applying effects via an AUX send for mixdown. (Numbers beside the boxes indicate the sequence of the steps described above.)



Using effects during ping-pong recording

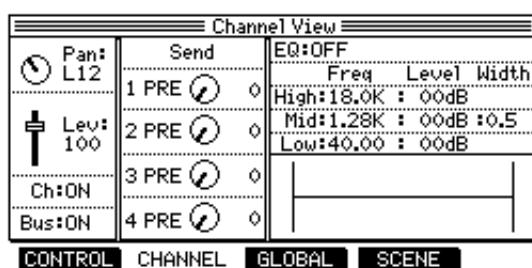
You can perform ping-pong recording while applying effects to multiple tracks. This section describes how to apply FX1 (reverb) to tracks 1–8 and record them to tracks 15 and 16.

- Move the cursor to the FX1 field in the Effect screen, and select a reverb type.

►NOTE : To apply effects via the AUX send/return during ping-pong recording, the effect sound (effect return) and the dry sound (TRACK MIX channel signal) are sent to and mixed in the ping-pong bus and recorded to one or two other tracks. Therefore, you must set the effect parameters so that only the effect sound is returned. As the default setting, all internal reverb and delay effects are set to output only the effect sound.

- Press the [F2] (CHANNEL) key in Mixer mode to recall the Channel View page.
- Use the [TRACK SELECT] key to select TRACK MIX channels for the ping-pong recording source, and set the Bus field to “ON”.

The selected TRACK MIX channel signals are sent to the ping-pong bus. Set the Bus parameter for TRACK MIX 1–8 to “ON”.

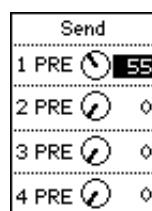


- Move the cursor to the left of the knob displayed in the Send 1 field, and specify whether you wish to send a pre-fader signal (PRE) or post-fader signal (POST) to AUX bus 1.

✓ TIP : Usually, select the post fader setting for the effect sound, such as reverb and delay, that is added to the original dry sound.

You can set the amount of the effect regardless of the fader setting on the channels for which you selected “PRE.” For example, if you lower the fader setting (Level parameter) to the minimum in order to output only the reverb sound to the bus, select “PRE” for that channel.

- Move the cursor to the right of the knob displayed in the Send 1 field, and adjust the Send 1 level. Set the level to 60 – 70 so that you can hear the reverb effects. Fine-adjust the level later while playing the DPS16.



<ex. Send 1 is set to “PRE” and Send 1 level is set to 55.>

6. Press the [MASTER] key and adjust the Send Master 1 level.

Leave the level to 100 (default). Fine-adjust the level later while playing the DPS16.

Channel View			
	Send Master	Effect Return	Bus
1	100	FX 1 100	OFF
2	100	FX 2 100	OFF
3	100	FX 3 100	OFF
4	100	FX 4 100	OFF
Master Level 100			

7. Set the FX1's Bus parameter to "ON".

Now the signal output from the FX1 (the reverb sound in this example) is sent to the ping-pong bus and mixed with the original dry sound from the TRACK MIX channels.

Channel View			
	Send Master	Effect Return	Bus
1	100	FX 1 100	ON
2	100	FX 2 100	OFF
3	100	FX 3 100	OFF
4	100	FX 4 100	OFF
Master Level 100			

8. Adjust the Effect Return 1 level in the same screen.

The Effect Return 1 parameter determines the return level (the level of signal sent from FX1 to the ping-pong bus).

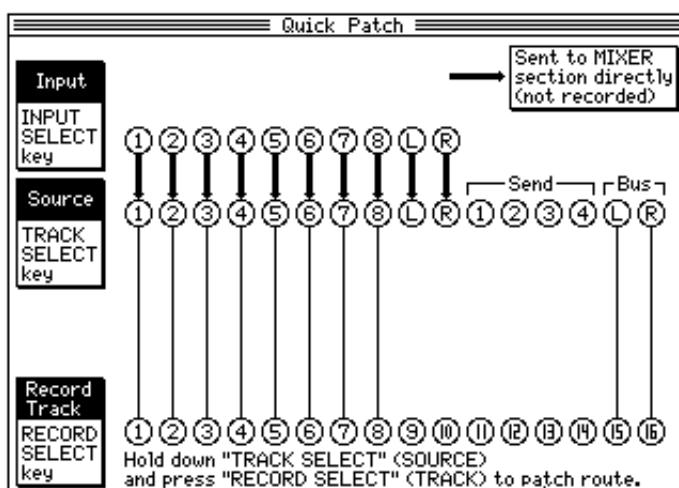
Leave the level to 100 (default). Fine-adjust the level later while playing the DPS16.

Channel View			
	Send Master	Effect Return	Bus
1	100	FX 1 100	OFF
2	100	FX 2 100	OFF
3	100	FX 3 100	OFF
4	100	FX 4 100	OFF
Master Level 100			

►NOTE : The Bus and Effect Return 1–4 parameters on this screen are the same as the Bus and Level fields on the Effect screen.

9. Assign the ping-pong bus L/R signals to tracks 15 and 16 in Quick Patch mode.

The original dry sound from TRACK MIX channels 1–8 is mixed with the FX1's effect sound in the ping-pong bus, then sent to tracks 15 and 16.



<ex. Ping-pong bus L/R signals are assigned to tracks 15 and 16.>

10. Press the [MAIN SCREEN] key to display the Main screen, then press [RECORD SELECT] keys 15 and 16 to place tracks 15 and 16 in record-ready mode.

11. Press the [▶] key to play the DPS16 and monitor the track 1-8 playback sound combined with the reverb sound.

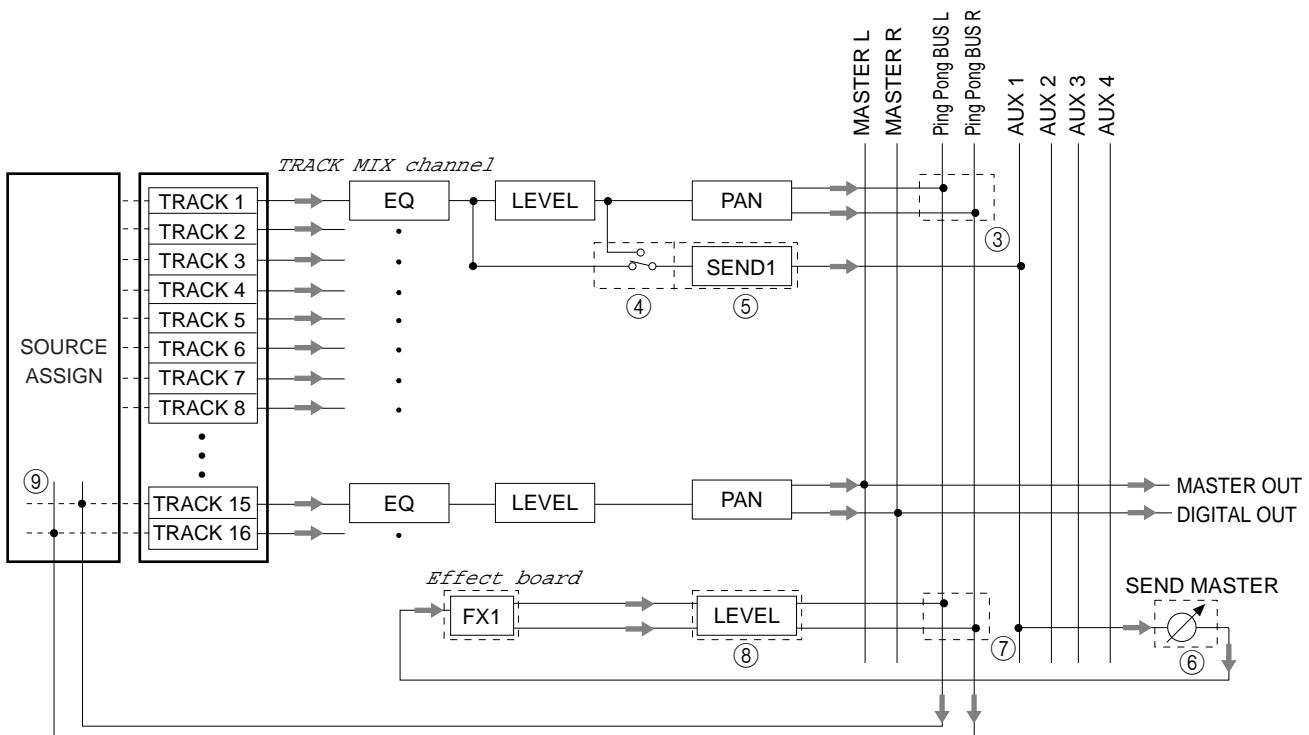
- To change the effect amount for each channel, adjust the send level of the target channel in Mixer mode. (See step 5.)
- To change the effect level while keeping the balance between effect sound and dry sound for each channel, adjust the effect return level. (See step 8.)
- If necessary, you can edit the effect sound in Effect mode.

✓ TIPS:

- You can also select PRE or POST and set the send level and send master on the Control View page (which is accessed by pressing the [F1](CONTROL) key in Mixer mode). You can view all channel settings on one Control View page. This is useful when you wish to apply the same effect to many channels. Refer to page 63 for more information on how to use the Control View page.
- Usually, the Effect Return parameter is used to adjust the level of effect sound. However, with some effects, the result may vary depending on the input level. If you are using such an effect on multiple channels, change the SEND MASTER level in Mixer mode (Step 6) to adjust the signal level input to the effect while keeping the send level balance on each channel.

12. When you are ready, start ping-pong recording.

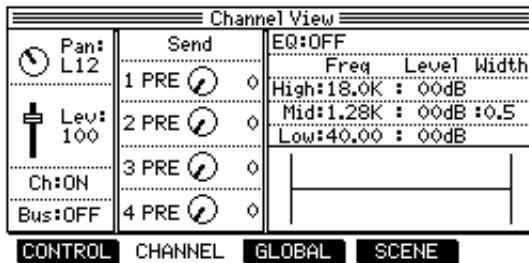
The following diagram illustrates the signal flow of ping-pong recording while applying effects as described above.



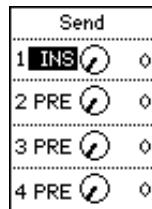
Inserting effects to input signals while recording

You may apply the DPS16's effects to the specified INPUT MIX channel or TRACK MIX channel signals. This technique is useful, for example, when you wish to apply compressor to the bass during recording, or apply exciter only to the vocal track during mixdown. This section describes how to apply the FX1's compressor to the INPUT 1 signal during recording.

- 1. Move the cursor to FX 1 on the Effect screen and select the compressor effect. (See page 145.)**
- 2. Press the [F2] (CHANNEL) key in Mixer mode and recall the Channel View page.**
- 3. Use the [INPUT SELECT] 1 key to select Input 1.**



- 4. Move the cursor to the left of the knob displayed in the Send 1 field, and select "INS" (insert).**



The FX1 effect is inserted into the signal input at INPUT 1. (The effect return signal from FX1 is sent to track 1 or INPUT MIX channel 1, depending on the setting in Quick Patch mode.)



- 5. Move the cursor to the right side of the knob indicated in the Send 1 field and adjust the level of signal sent to FX1. Usually, set the level to the maximum (127).**

✓ TIP : With some effects, the result may vary depending on the input level. If you are using such an effect on multiple channels, change the SEND level to adjust the level of the signal input to the effect.

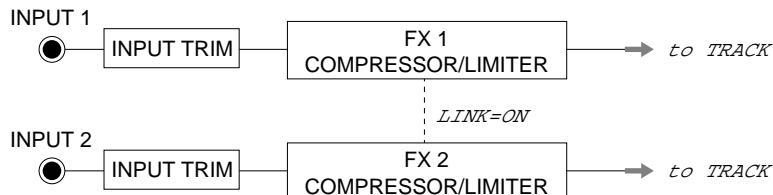
- 6. Assign Input 1 to track 1 in Quick Patch mode, then press [RECORD SELECT] key 1 in Main mode to arm track 1 for recording.**
- 7. While playing the sound source connected to the INPUT connector, adjust the effect parameters, if necessary.**
- 8. When you are ready, start recording on the DPS16.**

►NOTES :

- If you set an effect to "INS", you will not be able to use it for other inputs, TRACK MIX channels, or AUX sends.
- The signal output from the inserted effect is always mono. If you have selected a stereo-out effect, route the L-channel output signal for Inputs 1, 3, 5, 7, and digital L channel, and route the R-channel output signal for Inputs 2, 4, 6, 8, and digital R channel.

TIPS:

- If you insert two effects of the same type to two channels, you can use them as stereo-in/out effects. For example, you can apply the compressor to the signals from a stereo microphone.
 - Compressor, expander, and noise gate effect types offer a LINK parameter that allows FX2 to use the edited FX1 effect parameters. This is useful when you wish to use the same effect type for two channels.



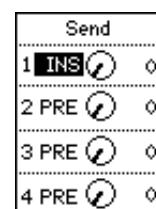
Inserting effects to particular playback tracks

You can also apply effects to only particular TRACK MIX channels (playback sound). The following example explains how to apply Pitch Correct effect only to track 1 (vocal track) during mixdown.

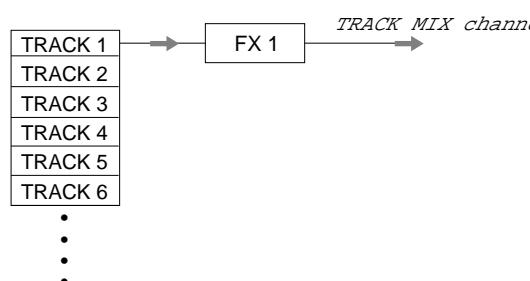
1. Move the cursor to FX 1 on the Effect screen and select a Pitch Correct effect type. (See page 145.)
 2. Press the [F2] (CHANNEL) key in Mixer mode and recall the Channel view page.
 3. Use the [TRACK SELECT] 1 key to select track 1.



4. Move the cursor to the left of the knob displayed in the **Send 1** field, and select “INS” (insert).



The FX1 effect is inserted into the track 1 output.



5. Move the cursor to the right side of the knob indicated in the **Send 1** field and adjust the level of signal sent to FX1. Usually, set the level to the maximum (127).

✓ TIP : With some effects, the result may vary depending on the input level. If you are using such an effect on multiple channels, change the **SEND** level to adjust the level of the signal input to the effect.

6. While playing the DPS16, adjust the effect parameters, if necessary.

7. When you are ready, start mixdown.

►NOTES :

- If you set an effect to “**IN**”, you will not be able to use it for other inputs, **TRACK MIX** channels, or **AUX** sends.
- If the signal output from the inserted effect is stereo, the stereo signal will be sent to the **Master bus**.

✓ TIPS:

- If you insert two effects of the same type to two channels, you can use them as stereo-in/out effects. For example, you can apply the compressor to the stereo drums tracks during mixdown.
- Compressor, expander, and noise gate effect types offer a **LINK** parameter that allows FX2 to use the edited FX1 effect parameters. They are useful when you wish to use the same effect type for two channels.

Effect types and parameters

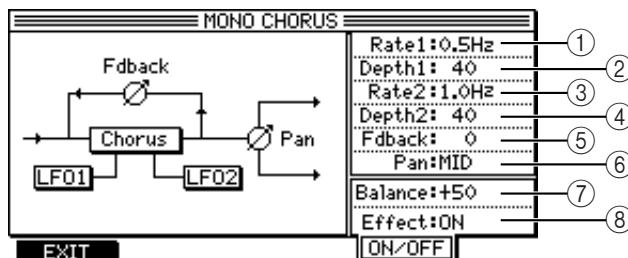
This section describes all types and parameters of the effects included in the DPS16's internal effects.

✓ TIPS:

- Those parameters that have “*1–*6” marks after their names can be controlled via QLMC1–6 (C1–C6 knobs).
- FX1–4 have a mono input.

MONO CHORUS

This is a common chorus effect with mono-in and mono-out. You can adjust the pan setting of the effect sound.



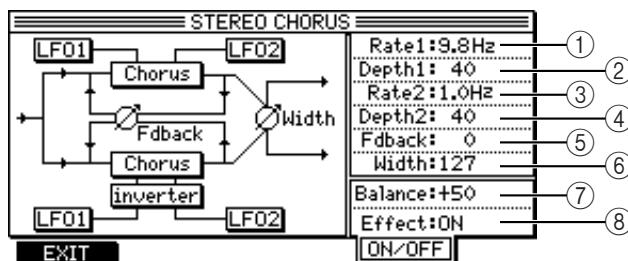
	Parameter	Setting range	Function
①	Rate1 *1	0.1Hz – 10.0Hz	Adjusts the speed (rate) of LFO1.
②	Depth1 *2	0 – 127	Adjusts the depth of LFO1.
③	Rate2 *3	0.1Hz – 10.0Hz	Adjusts the speed (rate) of LFO2.
④	Depth2 *4	0 – 127	Adjusts the depth of LFO2.
⑤	Fdbck *5	0 – 127	Adjusts the feedback amount.
⑥	Pan *6	L63 – MID – R63	Adjusts the stereo image of the effect sound.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect *	ON/OFF	Switches the effect sound output on and off.

* Effect parameters

Setting the effect parameter is the same as setting the OnOff field on the basic screen in Effect mode. (If you change an effect parameter, the corresponding OnOff field will change in the same way, and vice versa.) You can also use the [F4] (ON/OFF) key to change the parameter setting.

STEREO CHORUS

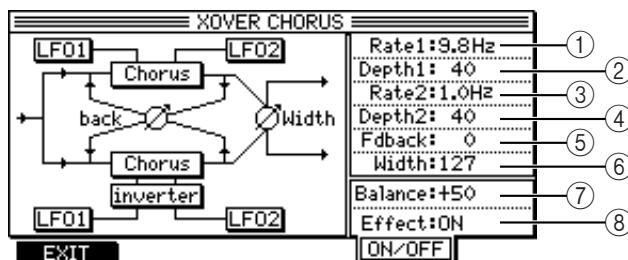
This is a stereo chorus effect that adds the width and spread of the stereo image.



	Parameter	Setting range	Function
①	Rate1 *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO1.
②	Depth1 *2	0 – 127	Adjusts the depth of LFO1.
③	Rate2 *3	0.1Hz – 10.0Hz	Adjusts the speed of LFO2.
④	Depth2 *4	0 – 127	Adjusts the depth of LFO2.
⑤	Fdback *5	0 – 127	Adjusts the feedback amount.
⑥	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

XOVER CHORUS

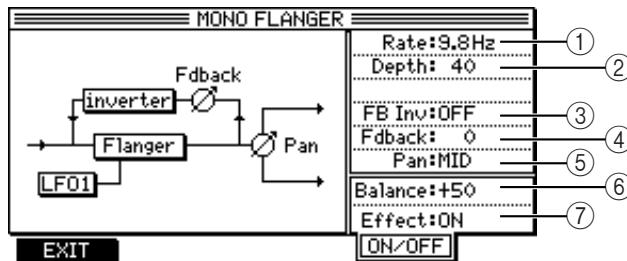
This is a variation of the STEREO CHORUS. The feedback from the L/R channels is input to the opposite channels.



	Parameter	Setting range	Function
①	Rate1 *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO1.
②	Depth1 *2	0 – 127	Adjusts the depth of LFO1.
③	Rate2 *3	0.1Hz – 10.0Hz	Adjusts the speed of LFO2.
④	Depth2 *4	0 – 127	Adjusts the depth of LFO2.
⑤	Fdback *5	0 – 127	Adjusts the feedback amount.
⑥	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

MONO FLANGER

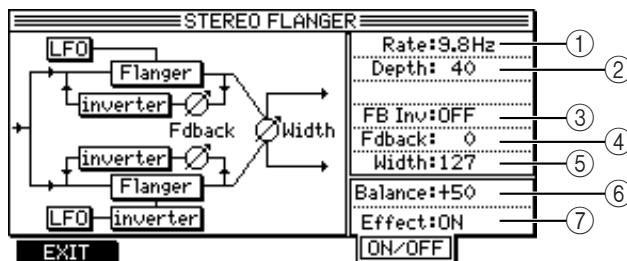
This is a common flanger effect with mono-in and mono-out. You can adjust the pan setting of the effect sound.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	FB Inv *4	ON/OFF	Inverses the phase of feedback signals when turned on.
④	Fdback *5	0 – 127	Adjusts the feedback amount.
⑤	Pan *6	L63 – MID – R63	Adjusts the stereo image of the effect sound.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

STEREO FLANGER

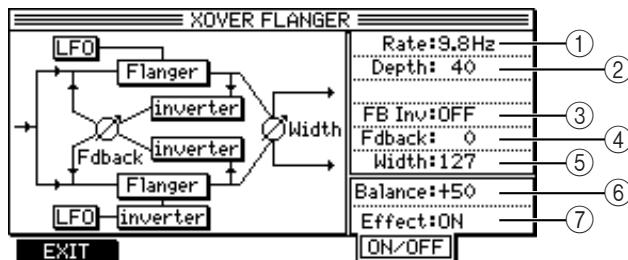
This is a stereo flanger effect that adds width and spread.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	FB Inv *4	ON/OFF	Inverses the phase of feedback signals when turned on.
④	Fdback *5	0 – 127	Adjusts the feedback amount.
⑤	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

XOVER FLANGER

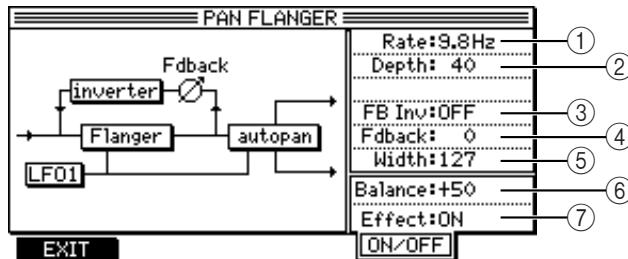
This is a variation of the STEREO FLANGER. The feedback from the L/R channels is input to the opposite channels.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	FB Inv *4	ON/OFF	Inverses the phase of feedback signals when turned on.
④	Fdback *5	0 – 127	Adjusts the feedback amount.
⑤	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

PAN FLANGER

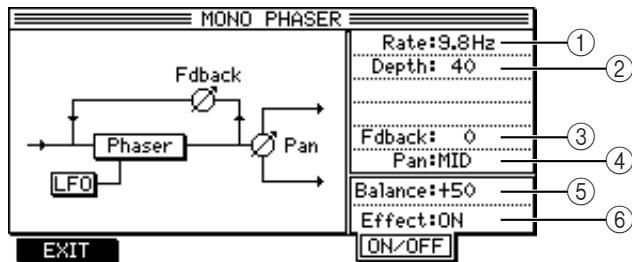
This effect adds an auto panning effect to the mono flanger.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	FB Inv *4	ON/OFF	Inverses the phase of feedback signals when turned on.
④	Fdback *5	0 – 127	Adjusts the feedback amount.
⑤	Width *6	0 – 127	Adjusts the panning width.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

MONO PHASER

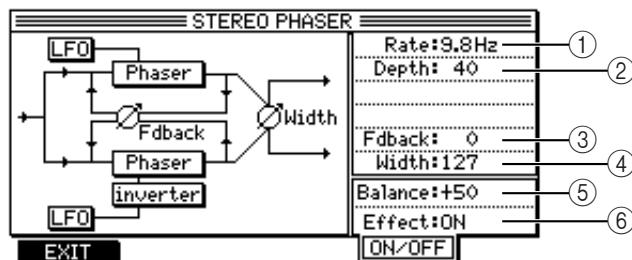
This is a common phaser effect with mono-in and mono-out. You can adjust the pan setting of the effect sound.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	Fdback *5	0 – 127	Adjusts the feedback amount.
④	Pan *6	L63 – MID – R63	Adjusts the stereo image of the effect sound.
⑤	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

STEREO PHASER

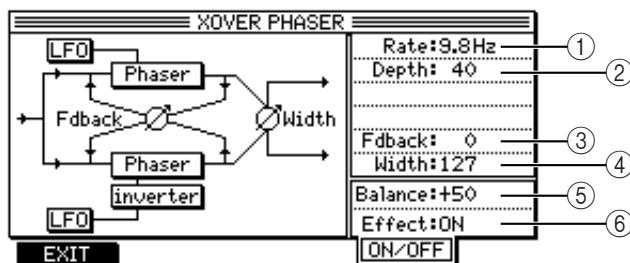
This is a phaser effect that adds width and spread to the stereo image.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	Fdback *5	0 – 127	Adjusts the feedback amount.
④	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑤	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

XOVER PHASER

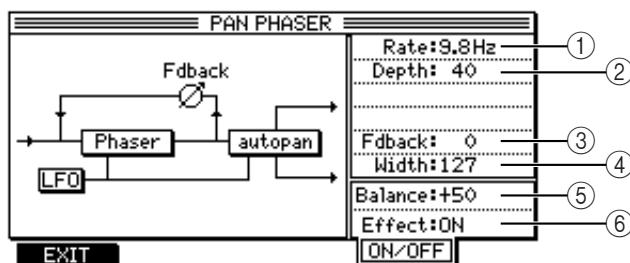
This is a variation of the STEREO PHASER. The feedback from the L/R channels is input to the opposite channels.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	Fdback *5	0 – 127	Adjusts the feedback amount.
④	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑤	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

PAN PHASER

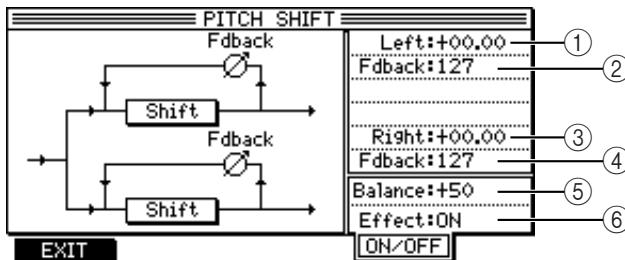
This effect adds an auto panning effect to the phaser effect sound.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO.
②	Depth *2	0 – 127	Adjusts the depth of LFO.
③	Fdback *5	0 – 127	Adjusts the feedback amount.
④	Width *6	0 – 127	Adjusts the panning width.
⑤	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

PITCH SHIFT

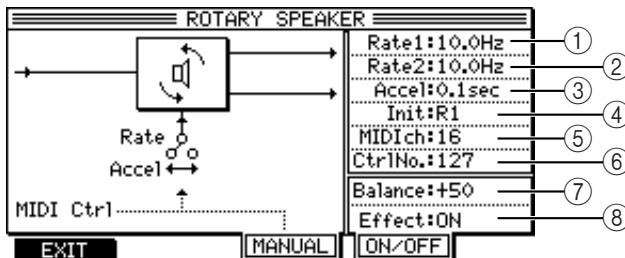
This effect has a pitch shift with a range of \pm one octave, and can be set for the left channel and the right channel independently.



	Parameter	Setting range	Function
①	Left *1	-12.99 – +12.99	Adjusts the amount of pitch shift for the L channel.
②	Fdbck *2	0 – 127	Adjusts the amount of delay that is fed back on the L channel.
③	Right *5	-12.99 – +12.99	Adjusts the amount of pitch shift for the R channel.
④	Fdbck *6	0 – 127	Adjusts the amount of delay that is fed back on the R channel.
⑤	Balance	+50 – 0 – -50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

ROTARY SPEAKER

This stereo-out effect simulates rotary speakers for organ sound. Use MIDI Control Change messages (input from the MIDI IN port or the [F4] (MANUAL) key) to switch between two rotation speeds (Rate1/Rate2).



	Parameter	Setting range	Function
①	Rate1 *1	0.1Hz – 10.0Hz	Adjusts the rotation speed (Rate1) of the speakers.
②	Rate2 *2	0.1Hz – 10.0Hz	Adjusts the rotation speed (Rate2) of the speakers.
③	Accel *3	0.1sec – 10sec	Adjusts the time (duration) taken for switching from Rate1 to Rate 2.
④	Init *4	R1/R2	Sets the initial rotation speed (Rate1/Rate2).
⑤	MIDICh *5	1 – 16	Selects a MIDI channel that receives Control Changes messages.
⑥	CtrlNo. *6	0 – 127	Sets a Control Change number to be received.
⑦	Balance	+50 – 0 – -50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

- Switching the speed using the [F4] (MANUAL) key:**

Pressing the [F4] (MANUAL) key repeatedly toggles between Rate 1 and Rate 2. Use the Accel parameter (③) to adjust the time (duration) taken for switching between two speeds.

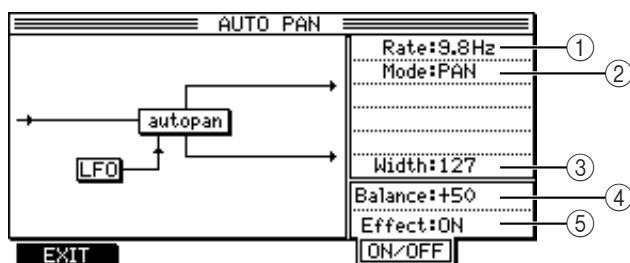
- Switching the speed using the Control Change messages:**

When the DPS16 receives a specified Control Change message, Rate 1 is selected if the value falls between 0 and 63, and Rate 2 is selected if the value falls between 64 and 127. Use the Ctrl1No. (⑥) parameter to set the Control number and the Accel (③) parameter to set the time (duration) taken for switching between two speeds.

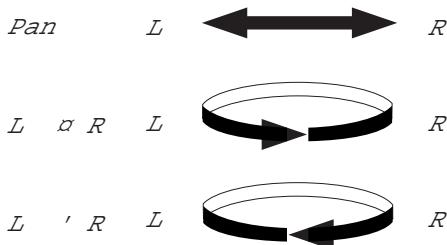
►NOTE : To avoid possible confusion, it is recommended that you select a different MIDI receive channel for Control Change messages to control mix parameters (see page 139) and for Control Change messages for this effect.

AUTO PAN

This auto pan effect automatically rotates the stereo image of the sound left and right. It also adds depth of rotation.

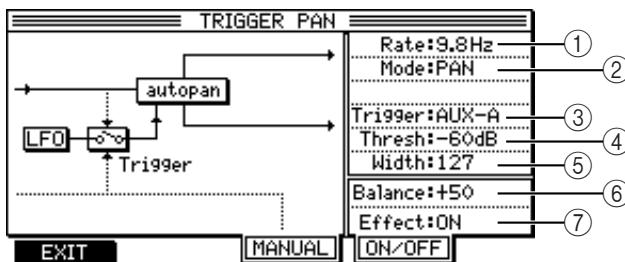


	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of panning
②	Mode *2	Pan	A common auto pan.
		L>R	Simulates a sound source that rotates counterclockwise.
		R>L	Simulates a sound source that rotates clockwise .
③	Width *6	0 – 127	Adjusts the panning width.
④	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑤	Effect	ON/OFF	Switches the effect sound output on and off.



TRIGGER PAN

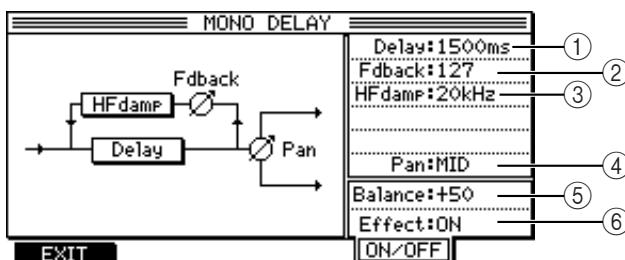
This auto pan effect becomes enabled when the output level of one of AUX sends 1–4 exceeds a certain level. You can also press the [F3] (MANUAL) key to start the auto pan effect manually.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of panning.
②	Mode *2	Pan/L>R/R>L	Sets the effect of panning. (Refer to AUTO PAN.)
③	Trigger *4	AUX-1 – AUX-4	Selects signals that enable the auto pan effect.
	MANUAL		Pressing the [F3] key enables the auto pan effect.
④	Thresh *5	-60dB – 0dB	Sets the signal level at which the auto pan becomes effective.
⑤	Width *6	0 – 127	Adjusts the panning width.
⑥	Balance	+50 – 0 – -50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

MONO DELAY

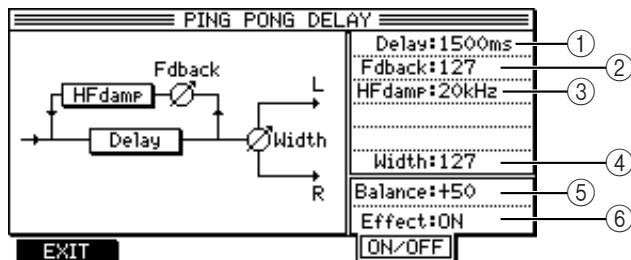
This is a common delay effect with mono-in and mono-out. You can adjust the pan setting of the effect sound.



	Parameter	Setting range	Function
①	Delay *1	1ms – 1500ms	Adjusts the delay time.
②	Fdbck *2	0 – 127	Adjusts the amount of delay feedback.
③	HFdamp *3	20Hz – 20kHz	Sets a frequency at which the higher range of the feedback sound is cut.
④	Pan *6	L63 – MID – R63	Adjusts the stereo image of the effect sound.
⑤	Balance	+50 – 0 – -50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

PING PONG DELAY

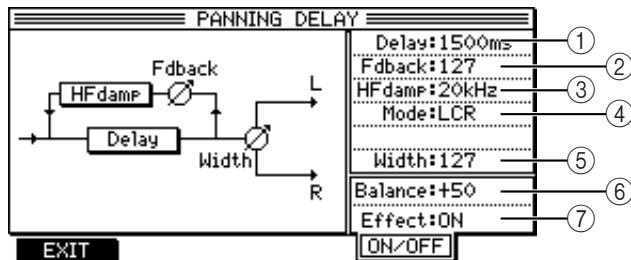
This delay effect pans the effect sound left and right.



	Parameter	Setting range	Function
①	Delay *1	1ms – 1500ms	Adjusts the delay time.
②	Fdback *2	0 – 127	Adjusts the amount of delay feedback.
③	HFdamp *3	20Hz – 20kHz	Sets a frequency at which the higher range of the feedback sound is cut.
④	Width *6	0 – 127	Adjusts the panning width.
⑤	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

PANNING DELAY

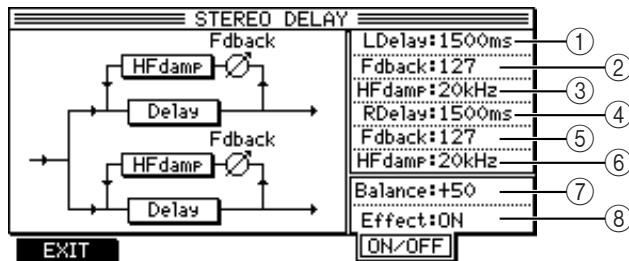
This delay effect pans the delay sound left, center, then right (LCR), or right, center, then left (RCL).



	Parameter	Setting range	Function
①	Delay *1	1ms – 1500ms	Adjusts the delay time.
②	Fdback *2	0 – 127	Adjusts the amount of delay feedback.
③	HFdamp *3	20Hz – 20kHz	Sets a frequency at which the higher range of the feedback sound is cut.
④	Mode *4	LCR/RCL	Sets the panning effect.
⑤	Width *6	0 – 127	Adjusts the panning width.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

STEREO DELAY

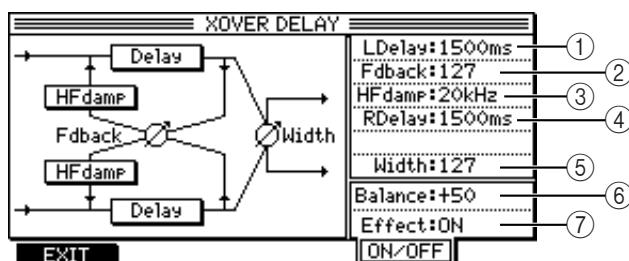
This delay effect can be set for the left and right channels individually.



	Parameter	Setting range	Function
①	LDelay *1	1ms – 1500ms	Adjusts the delay time of the L channel.
②	Fdbck *2	0 – 127	Adjusts the amount of delay feedback (Lch).
③	HFdamp *3	20Hz – 20kHz	Sets a frequency at which the higher range of the feedback sound (Lch) is cut.
④	RDelay *4	1ms – 1500ms	Adjusts the delay time of the R channel.
⑤	Fdbck *5	0 – 127	Adjust the amount of delay feedback (Rch).
⑥	HFdamp *6	20Hz – 20kHz	Sets a frequency at which the higher range of the feedback sound (Rch) is cut.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

XOVER DELAY

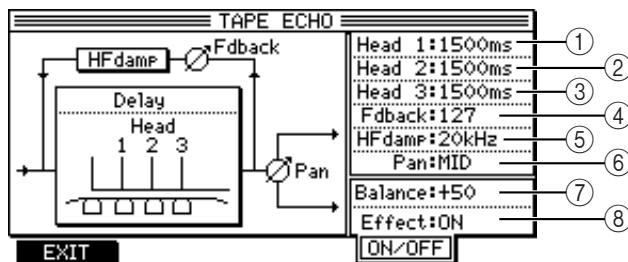
This is a variation of the STEREO DELAY. The feedback from the L/R channels is input to the opposite channels.



	Parameter	Setting range	Function
①	LDelay *1	1ms – 1500ms	Adjusts the delay time of the L channel.
②	Fdbck *2	0 – 127	Adjusts the amount of delay feedback (L/Rch).
③	HFdamp *3	20Hz – 20kHz	Sets a frequency at which the higher range of the feedback sound (L/Rch) is cut.
④	RDelay *4	1ms – 1500ms	Adjusts the delay time of the R channel.
⑤	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

TAPE ECHO

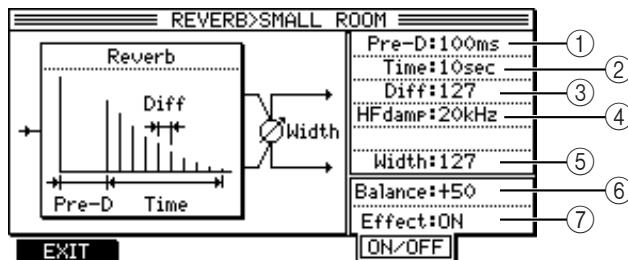
This delay effect simulates a three-head tape echo machine. You can set three delay times individually. This effect has mono-in and mono-out; however, you can adjust the pan setting of the effect sound.



	Parameter	Setting range	Function
①	Head 1 *1	1ms – 1500ms	Adjusts the delay time of Delay 1.
②	Head 2 *2	1ms – 1500ms	Adjusts the delay time of Delay 2.
③	Head 3 *3	1ms – 1500ms	Adjusts the delay time of Delay 3.
④	Fdbck *4	0 – 127	Adjust the amount of delay feedback.
⑤	HFdamp *5	20Hz – 20kHz	Sets a frequency at which the higher range of the feedback sound is cut.
⑥	Pan *6	L63 – MID – R63	Adjusts the stereo image of the effect sound.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>SMALL ROOM

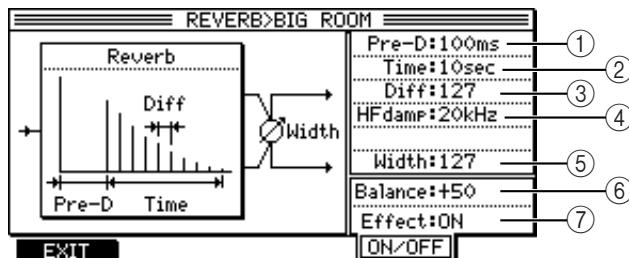
This stereo reverb effect simulates reverberations in a small room.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>BIG ROOM

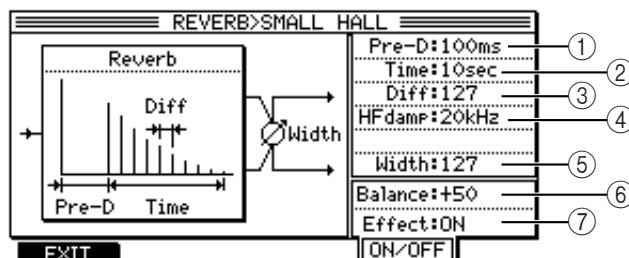
This stereo reverb effect simulates reverberations in a big room.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>SMALL HALL

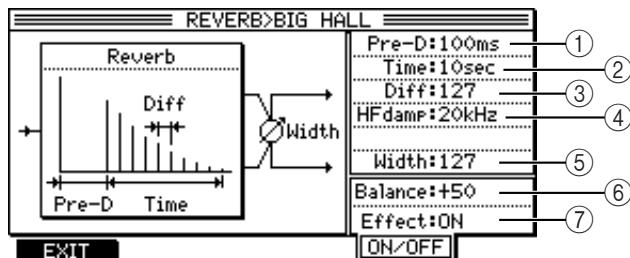
This stereo reverb effect simulates reverberations in a small hall.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>BIG HALL

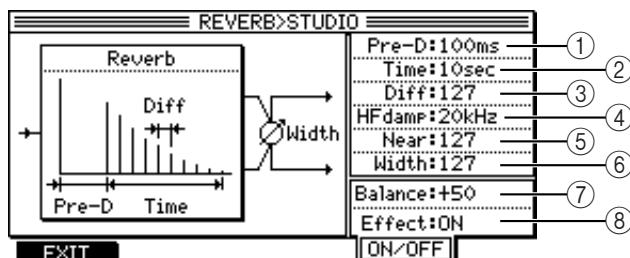
This stereo reverb effect simulates reverberations in a big hall.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑥	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑦	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>STUDIO

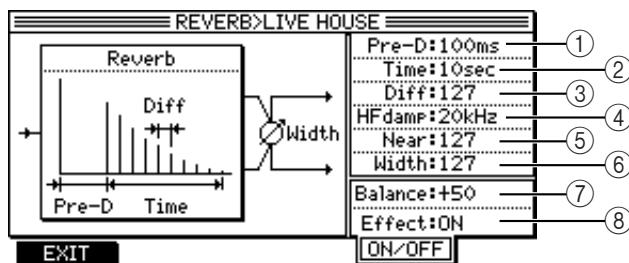
This stereo reverb effect simulates reverberations in a recording studio.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Near *5	0 – 127	Adjusts the imaginary distance to the sound source. Lower the value is, more depth and distance.
⑥	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>LIVE HOUSE

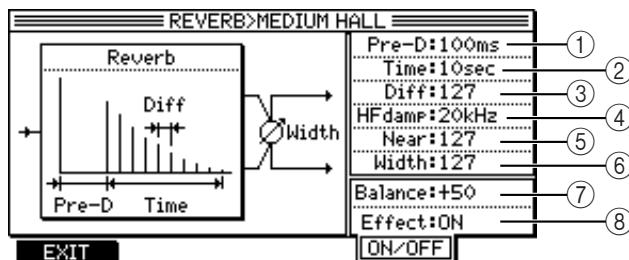
This stereo reverb effect simulates reverberations in a live house.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Near *5	0 – 127	Adjusts the imaginary distance to the sound source. Lower the value is, more depth and distance.
⑥	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>MEDIUM HALL

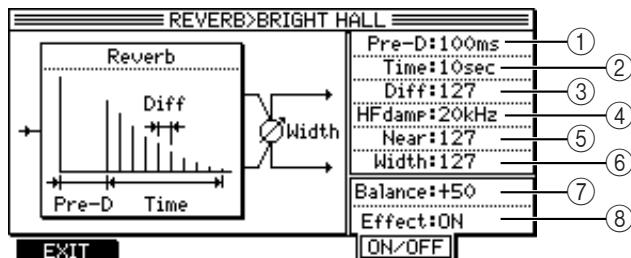
This stereo reverb effect simulates reverberations in a medium-size hall.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Near *5	0 – 127	Adjusts the imaginary distance to the sound source. The lower the value is, the more depth and distance.
⑥	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>BRIGHT HALL

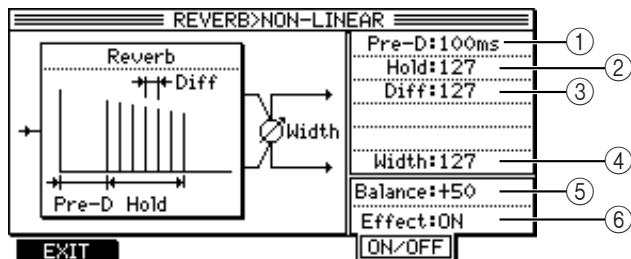
This stereo reverb effect simulates bright reverberations in a hall.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time of attenuation of reverberation.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	HFdamp *4	20Hz – 20kHz	Sets a frequency at which the higher range of reverberation is cut.
⑤	Near *5	0 – 127	Adjusts the imaginary distance to the sound source. Lower the value is, more depth and distance.
⑥	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>NON-LINEAR

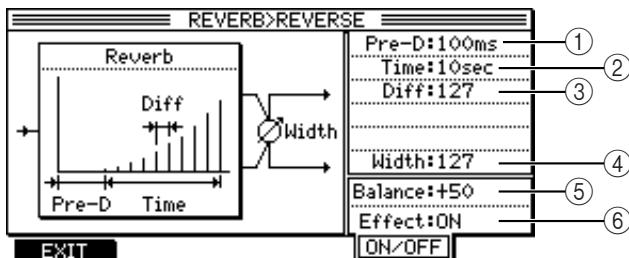
This special reverb effect (gate reverb) stops reverberation at a specified time.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Hold *2	0 – 127	Adjusts the time (duration) until reverberation is stopped.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑤	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

REVERB>REVERSE

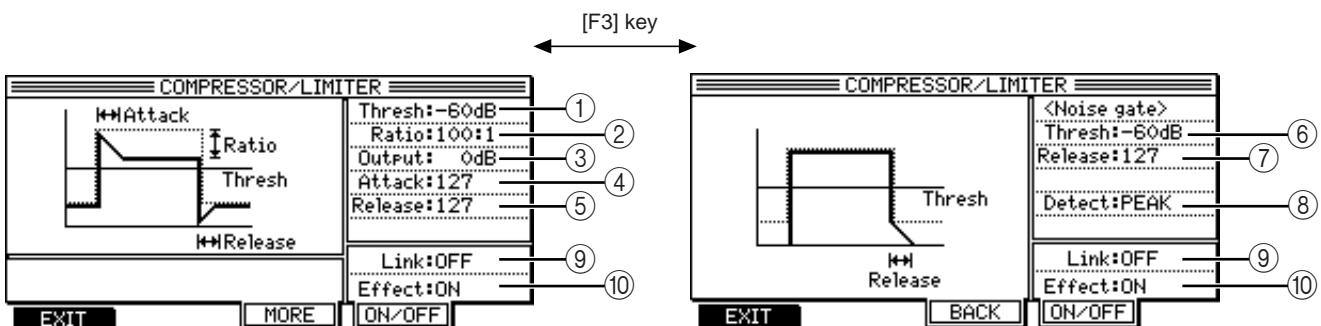
This stereo reverb effect reverses the reverberations.



	Parameter	Setting range	Function
①	Pre-D *1	1ms – 100ms	Adjusts the delay time of early reflections.
②	Time *2	0.1sec – 10sec	Adjusts the time (duration) until reversed reverberations are played.
③	Diff *3	0 – 127	Adjusts the density of reverberation.
④	Width *6	0 – 127	Adjusts the width and spread of the stereo image.
⑤	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑥	Effect	ON/OFF	Switches the effect sound output on and off.

COMPRESSOR/LIMITER

This monaural effect suppresses signals with a certain level or higher and limits the dynamic range. It also provides a noise gate that cuts noise during silence. Pressing the [F3] (MORE/BACK) key switches the field for two parameters.



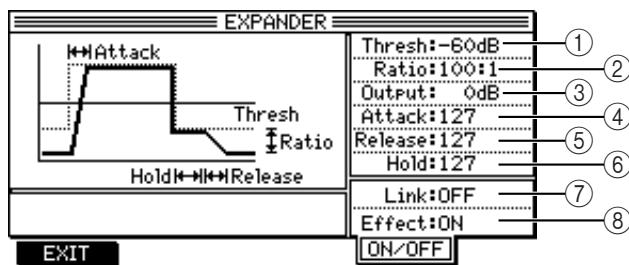
	Parameter	Setting range	Function
①	Thresh *1	-60dB – 0dB	Adjusts the threshold level at which the effect is enabled.
②	Ratio *2	2:1 – 100:1	Adjusts the compression ratio for signals that exceed the threshold level.
③	Output *3	-20dB – +20dB	Adjusts the level of the effect sound.
④	Attack *4	0 – 127	Adjusts the attack time of the effect.
⑤	Release *5	0 – 127	Adjusts the release time of the effect.
⑥	Thresh	-60dB – 0dB	Adjusts the threshold level at which the noise gate opens.
⑦	Release	0 – 127	Adjusts the release time of the noise gate.
⑧	Detect	Peak RMS	Changes in the signal level are closely detected. Averaged level changes are detected.
⑨	Link ≈	ON/OFF	Selects whether or not the FX 1 (FX 3) settings are used by the FX2 (FX4) parameters.
⑩	Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).

***1 Link parameter**

The Link parameter appears on the FX 1 and FX 3 screens. If you select the COMPRESSOR/LIMITER effect for the FX 1 and FX 2 (or FX 3 and FX 4) and set the Link parameter for the FX 1 (or FX 3) to ON, the FX2 (or FX 4) parameters will use the FX 1 (or FX 3) parameter settings. If you did not select the COMPRESSOR/LIMITER effect for the FX 2 and FX 4, the Link parameter setting will be ignored. The Link parameter is useful when you wish to apply the compressor/limiter effect to a stereo signal source.

EXPANDER

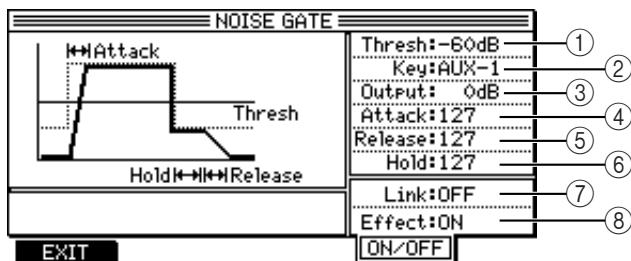
This monaural effect limits signals at a certain level (threshold) or lower and expands the dynamic range, providing an effect opposite to the compressor effect.



	Parameter	Setting range	Function
①	Thresh *1	-60dB – 0dB	Adjusts the level at which the effect is enabled.
②	Ratio *2	2:1 – 100:1	Adjusts the compression ratio for signals that is lower than the threshold value.
③	Output *3	-20dB – +20dB	Adjust the level of the effect sound.
④	Attack *4	0 – 127	Adjusts the attack time of the effect.
⑤	Release *5	0 – 127	Adjusts the release time of the effect.
⑥	Hold *6	0 – 127	Adjusts the hold time of the effect.
⑦	Link	ON/OFF	Selects whether or not the FX 1 (FX 3) settings are used by the FX 2 (FX 4) parameters. (See above "Link parameter" on this page.)
⑧	Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).

NOISE GATE

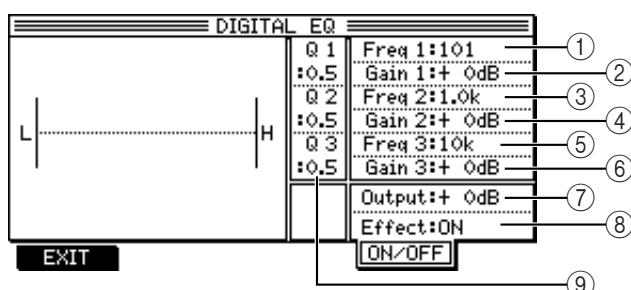
This monaural effect mutes signals at a certain level (threshold) or lower. This is useful for cutting noise during silent parts of a performance.



	Parameter	Setting range	Function
①	Thresh *1	-60dB – 0dB	Adjusts the level at which the gate opens or closes.
②	Key *2	AUX-1 – AUX-4	Selects the source signal that triggers the gate to open or close (AUX send 1–4).
③	Output *3	-20dB – +20dB	Adjusts the level of the effect sound.
④	Attack *4	0 – 127	Adjusts the attack time of the effect.
⑤	Release *5	0 – 127	Adjusts the release time of the effect.
⑥	Hold *6	0 – 127	Adjusts the hold time of the effect.
⑦	Link	ON/OFF	Selects whether or not the FX 1 (FX 3) settings are used by the FX 2 (FX 4) parameters. (See “Link parameter” on page 174.)
⑧	Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).

DIGITAL EQ

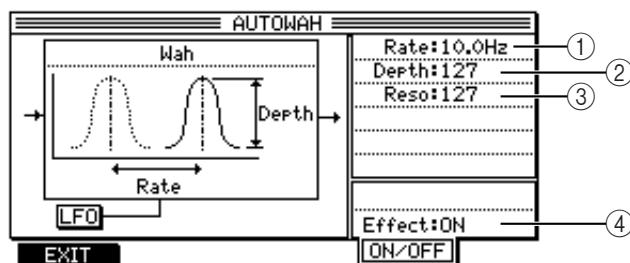
This is a monaural, three-band parametric equalizer.



	Parameter	Setting range	Function
①	Freq 1 *1	20Hz – 20kHz	Sets the center frequency for EQ1.
②	Gain 1 *2	-18dB – +18dB	Adjusts the gain for EQ1.
③	Freq 2 *3	20Hz – 20kHz	Sets the center frequency for EQ2.
④	Gain 2 *4	-18dB – +18dB	Adjusts the gain for EQ2.
⑤	Freq 3 *5	20Hz – 20kHz	Sets the center frequency for EQ3.
⑥	Gain 3 *6	-18dB – +18dB	Adjusts the gain for EQ3.
⑦	Output	-60dB – +24dB	Sets the level of the effect sound.
⑧	Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).
⑨	Q 1 – 3	0.5 – 10	Sets the Q for EQ1–3.

AUTOWAH

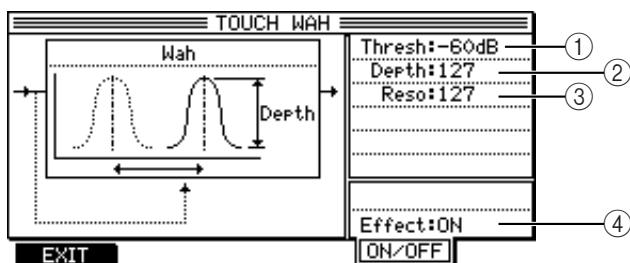
This monaural effect adds a swelling wah.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed (rate) of swelling (LFO) of the wah effect.
②	Depth *2	0 – 127	Adjusts the depth of the effect.
③	Reso *3	0 – 127	Adjusts the amount of resonance.
④	Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).

TOUCH WAH

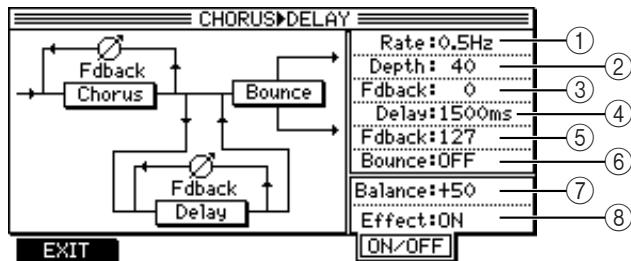
This monaural effect adds a wah effect to signals at a certain level or higher.



	Parameter	Setting range	Function
①	Thresh *1	-60dB – 0dB	Adjusts the signal level at which the wah effect becomes effective.
②	Depth *2	0 – 127	Adjusts the depth of the effect.
③	Reso *3	0 – 127	Adjusts the amount of resonance.
④	Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).

CHORUS>DELAY

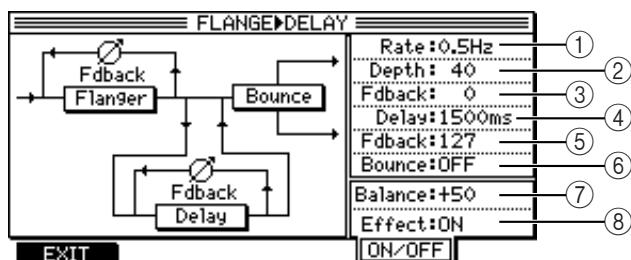
This effect consists of a chorus effect and a delay effect connected in series.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO for the chorus effect.
②	Depth *2	0 – 127	Adjusts the depth of LFO for the chorus effect.
③	Fdbck *3	0 – 127	Adjusts the amount of the chorus effect feedback.
④	Delay *4	1ms – 1500ms	Adjusts the delay time of the delay effect.
⑤	Fdbck *5	0 – 127	Adjusts the amount of the delay effect feedback.
⑥	Bounce *6	ON/OFF	Sets whether the delay sound is panned (ON) or not.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

FLANGE>DELAY

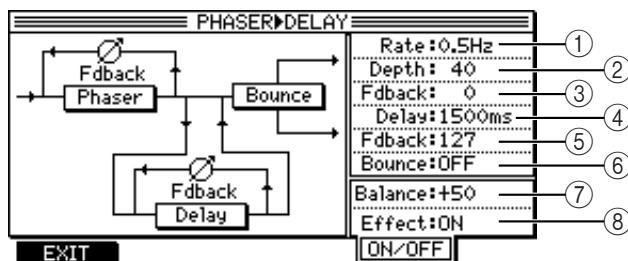
This monaural effect consists of a flanger effect and a delay effect connected in series.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO for the flanger effect.
②	Depth *2	0 – 127	Adjusts the depth of LFO for the flanger effect.
③	Fdbck *3	0 – 127	Adjusts the amount of the flanger effect feedback.
④	Delay *4	1ms – 1500ms	Adjusts the delay time of the delay effect.
⑤	Fdbck *5	0 – 127	Adjusts the amount of the delay effect feedback.
⑥	Bounce *6	ON/OFF	Sets whether the delay sound is panned (ON) or not.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

PHASER/DELAY

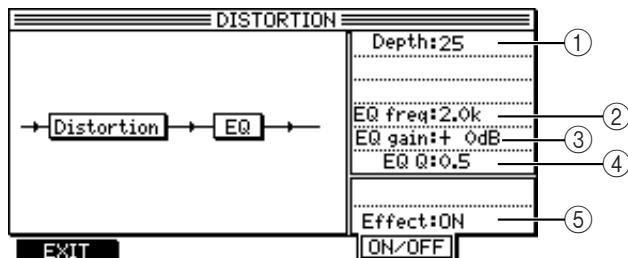
This monaural effect consists of a phaser effect and a delay effect connected in series.



	Parameter	Setting range	Function
①	Rate *1	0.1Hz – 10.0Hz	Adjusts the speed of LFO for the phaser effect.
②	Depth *2	0 – 127	Adjusts the depth of LFO for the phaser effect.
③	Fdbck *3	0 – 127	Adjusts the amount of the phaser effect feedback.
④	Delay *4	1ms – 1500ms	Adjusts the delay time of the delay effect.
⑤	Fdbck *5	0 – 127	Adjusts the amount of the delay effect feedback.
⑥	Bounce *6	ON/OFF	Sets whether the delay sound is panned (ON) or not.
⑦	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
⑧	Effect	ON/OFF	Switches the effect sound output on and off.

DISTORTION

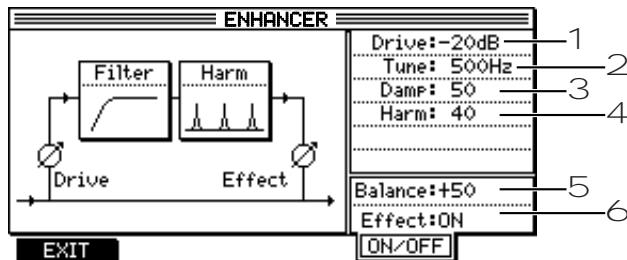
This monaural distortion effect distorts input signals. An equalizer is connected to the effect in series.



	Parameter	Setting range	Function
①	Depth *1	0 – 31	Adjusts the depth of distortion.
②	EQ freq *4	0 – 127	Adjusts the center frequency of the EQ.
③	EQ Gain *5	–15dB – +15dB	Adjusts the gain of the EQ.
④	EQ Q *6	0.5 – 10	Adjusts the Q of the EQ.
⑤	Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).

ENHANCER

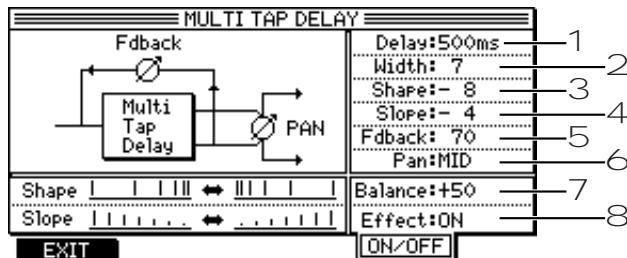
This monaural effect gives frame to the sound by adding new overtones.



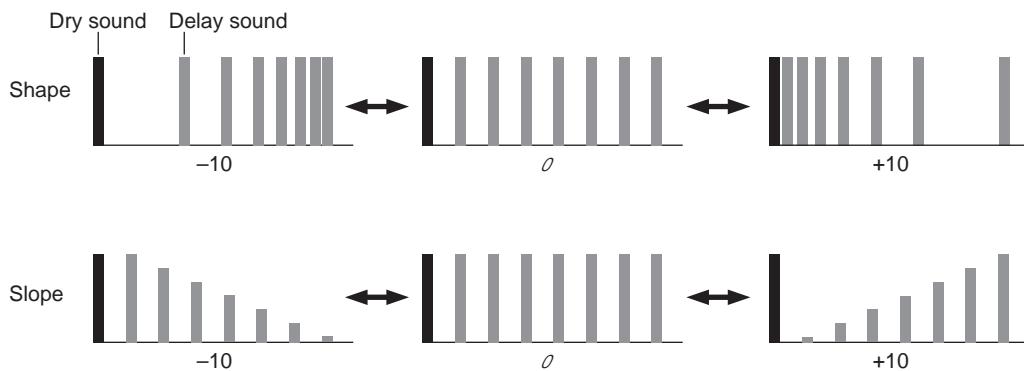
	Parameter	Setting range	Function
1	Drive *1	0dB – 30dB	Adjusts the gain of the signal input to the harmonics generator.
2	Tune *2	0 – 127	Adjusts the filter cut-off frequency.
3	Damp *3	0 – 127	Adjusts the filter attenuation curve (slope).
4	Harm *4	0 – 127	Adjusts the signal level of the emphasized harmonics.
5	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
6	Effect	ON/OFF	Switches the effect sound output on and off.

MULTI TAP DELAY

This delay effect creates a special effect by adjusting the interval between feedback sounds and the level change curve of the feedback sounds.

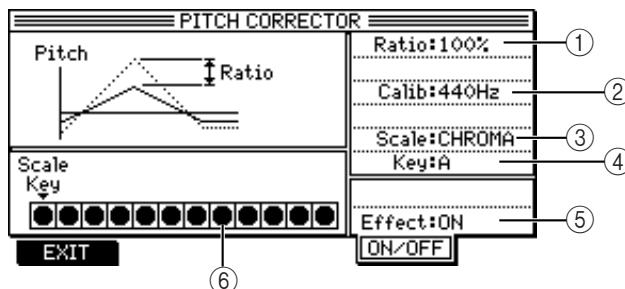


	Parameter	Setting range	Function
1	Delay *1	1 – 127	Adjusts the delay time.
2	Width *2	2 – 15	Adjusts the left and right spread of the feedback sound.
3	Shape *3	-10 – +10	Adjusts the interval between the feedback sounds.
4	Slope *4	-10 – +10	Adjusts the attenuation curve of the feedback sound.
5	Fdback *5	0 – 127	Adjusts the feedback sound.
6	Pan *6	-10 – +10	Adjusts the stereo image of the effect sound.
7	Balance	+50 – 0 – –50	Adjusts the balance between the effect sound and dry sound. (Effect sound only at a value of +50)
8	Effect	ON/OFF	Switches the effect sound output on and off.



PITCH CORRECTOR

This monaural effect corrects the pitch of input signals in real-time. This is useful when you wish to correct the pitch of the vocal track.



Parameter	Setting range	Function
① Ratio *1	0% – 100%	Adjusts the amount of correction to the pitch.
② Calib *3	415Hz – 466Hz	Sets the standard pitch.
③ Scale *4 ≈1	See the diagram below	Sets the standard scale.
④ Key *5	C/C#/.../A#/B	Sets the standard twelve keys.
⑤ Effect	ON/BYPASS	Selects whether the effect is enabled (ON) or bypassed (BYPASS).
⑥ Scale display ≈1		Displays the scale selected in the Scale parameter (③). (See the diagram below.)

*1 Scale parameter:

You can select from the following scales for the Scale parameter. When you change the Scale parameter, the scale display (⑥) also changes as follows.

Scale parameter (③) setting	Scale display (⑥)
CHROMA (Chromatic scale)	
M (Major scale)	
m (Minor scale)	
m-HERM (Harmonic minor scale)	
m-MELO (Melodic minor scale)	
WHOLE (Whole tone scale)	
BLUES (Blues scale)	
ARAB (Arabian scale)	
DORIAN (Dorian scale)	
PHRYGI (Phrygian scale)	
LYDIAN (Lydian scale)	
MIXOLY (Mixolydian scale)	
LOCRIA (Locrian scale)	

TIP : Usually, select the chromatic scale. However, depending on the songs, selecting another scale may produce an interesting result.

Appendix

Specifications

Power supply	: AC 120V 60Hz (US, Canada), 220–240V 50Hz (Europe) 30W
Operating temperature	: 10 – 35 C°
Operating Humidity	: 10% – 60% (without condensation)
Dimensions (mm)	: 515 (W) x 127.5 (H) x 358.5 (D) (with LCD tilted down)
Weight	: 6.4kg (without drive)
Display	: 320 x 240 dot FSTN graphical LCD with back light
Recording media	: Internal IDE/external SCSI Harddisk
Sampling rate	: 96kHz, 48kHz, 44.1kHz, 32kHz
Recording time	: With a 10Gbyte Harddisk (total recording time) FS = 96kHz Approx. 15 hours (8 track x 1 hour 52 minutes) FS = 48kHz Approx. 30 hours (16 track x 1 hour 52 minutes) FS = 44.1kHz Approx. 32 hours 40 minutes (16 track x 2 hours 2 minutes) FS = 32kHz Approx. 45 hours (16 track x 2 hours 48 minutes)
Simultaneous recording track	: Up to 10 (8 at 96kHz)
Frequency response	: FS = 96kHz 10Hz – 44kHz +/-2.0dB FS = 48kHz 10Hz – 22kHz +/-2.0dB FS = 44.1kHz 10Hz – 20kHz +/-2.0dB FS = 32kHz 10Hz – 15kHz +/-2.0dB
Quantization bit	: 24bit/16bit linear
ADC	: 24bit 128-times oversampling, enhanced dual bit delta/sigma modulation
DAC	: 24bit 128-times oversampling, advanced multi-bit delta/sigma modulation
Dynamic range	: 100dB or more (100 ohms terminated)
Distortion ratio	: 0.003% or less (1kHz, FS = 44.1kHz)
Channel crosstalk	: 75dB or more (10kHz referenced, 100 ohms terminated)
Wow & flutter	: Below measurable limit
Analog audio input	: 1 – 2ch: 6.3mm Stereo phone/XLR combo jack Phantom power provided (switchable) for XLR connection 3 – 8ch: 6.3mm Stereo phone jack (balance/unbalance)
Input level	: -46dBu to +4dBu (max. +19dBu, 1kHz)
Impedance	: 1 – 7ch : 10k ohms 8ch : 10k/470k ohms (normal/guitar)
Analog audio output	: MASTER OUT : RCA - unbalanced MONITOR OUT : RCA - unbalanced AUX SEND 1 – 4 : 6.3mm Stereo phone jack - unbalanced

Output level	: MASTER OUT : -10dBu (max. +5dBu, load impedance: 47k ohms) MONITOR OUT : -10dBu (max. +5dBu, load impedance: 47k ohms) AUX SEND 1 – 4 : -10dBu (max. +5dBu, load impedance: 47k ohms)
Impedance	: MASTER OUT : 1k ohms MONITOR OUT : 1k ohms AUX SEND 1 – 4 : 1k ohms
Stereo phone output	: x 1, 6.3mm Stereo phone jack Maximum output : 125mW (load impedance : 32 ohms)
Digital audio input	: x 1, Coaxial (SPDIF) - 2 channels assignable
Digital audio output	: x 1, Coaxial (SPDIF) - MASTER OUT
Footswitch jack	: x 1, 6.3mm Phone jack
MIDI	: x 2, 5-pin DIN for MIDI IN, MIDI OUT/THRU
SCSI	: x 1, High-pitch 50-pin for external Harddisk connection
Accessories	: 3-prong power cable Internal Disk Mounting kit Operator's Manual
Options	: EB4M Effects board

*0dBu = 0.775Vrms

The specifications are subject to change without prior notice.

MIDI Implementation Chart

Model DPS16

Date: 12/99
Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic channel	Default	X	X	
	Changed	X	X	
Mode	Default	X	X	
	Messages	X	X	
	Altered	*****		
Note Number:		X	X	
	True Voice	*****		
Velocity	Note On	X	X	
	Note Off	X	X	
After Touch	Key	X	X	
	Channel	X	X	
Pitch Bend		X	X	
Control Change		O	O	See page 118 for the Control Change assign table.
Program Change	Setting Range OFF, 1 ~ 16, OM	*****	X	
System Exclusive		O (*1)	O (*3)	MTC, MMC
System Common	: Song Position	O	X	
	: Song Select	X	X	
	: Tune	X	X	
System Real Time	: Clock	O (*2)		
	: Command	O		Continue, Stop, Start
Aux Messages	: Local On/Off			
	: All Notes Off			
	: Active Sense			
	: Reset			
Notes		(*1) MTC is transmitted only in MTC OUT mode. (*2) They are SSP and CLOCK, and transmitted only when SYNC is ON. (*3) MMC System Exclusive is supported.		

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLYMode 2: OMNI ON, MONO
Mode 4: OMNI OFF, MONOO: Yes
X: No

Installation of Options - For Service Technicians

- Consult your AKAI professional dealer where you purchased or the AKAI professional Service Center for the installation of disk drive.

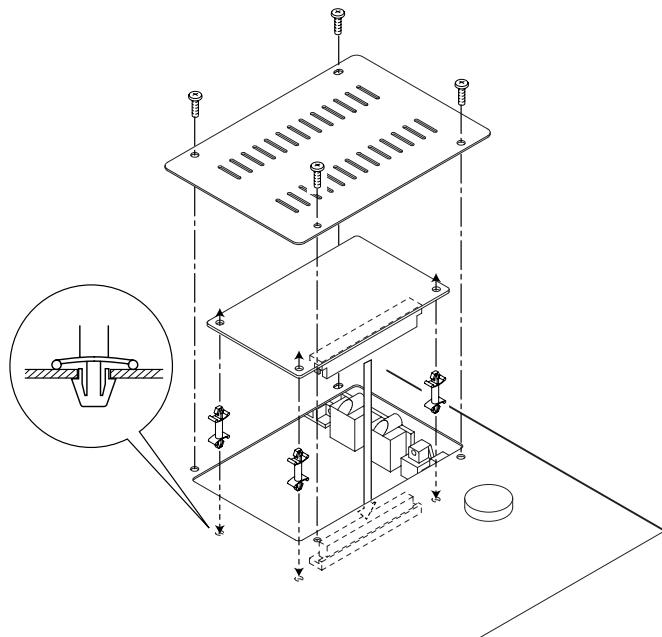
Installing EB4M

EB4M contents

EB4M P.C. Board x1
 Plastic Support x3

Mounting EB4M P.C. Board

1. Loosen the 4 screws for the bottom cover and remove it as illustrated.
2. Place the Plastic Supports to the MAIN P.C. Board firmly then insert the EB4M P.C. Board matching the position of connectors.
3. Replace the bottom cover and tighten the 4 screws.



Installing Hard Disk

With the Disk Mounting Kit included in the DPS16, the IDE Disk Drive can be mounted inside the DPS16.

- Consult your AKAI professional dealer or AKAI professional Service for the drives that can be installed.

Disk Mounting Kit contents

- ① Metal Prop (inch-thread) x4
- ② Drive Mounting Screw (inch-thread, 3.2x5) x4
- ③ Metal Prop (milli-thread) x4
- ④ Drive Mounting Screw (milli-thread, 3x3) x4

Mounting Disk Drive

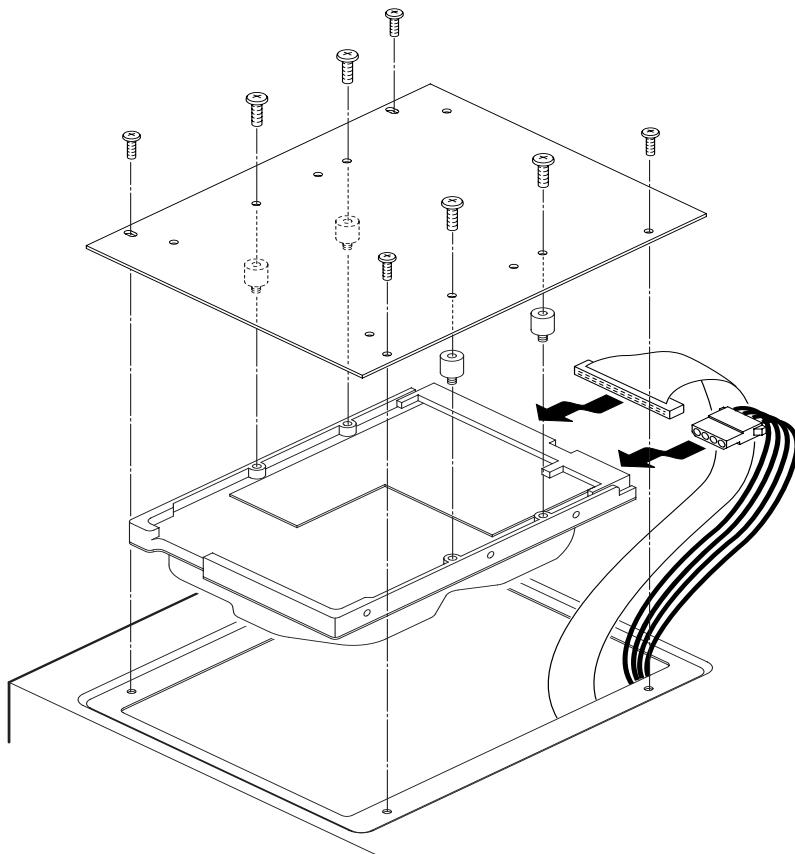
Follow the following procedure to mount the Disk Drive inside the DPS16.

Note 1: Set the Disk Drive in Master (or Single Mode, if so equipped) mode referring to the operation manual of the drive.

1. Loosen the 4 screws for the bottom cover and remove it.
2. Screw in the 4 Metal Props (inch-thread) on the drive and then fix the disk drive to the bottom cover with 4 Drive Mounting Screws (inch-thread, 3.2x5).
3. Cut loose the 40P IDE Flat Cable and 4P Power Cable on the DPS16 and then connect the both end of connectors to the drive accordingly.
4. Place the bottom cover back and fix it with the 4 screws.

Note 2: When mounting the Removable Disk Drive, the drive has to be mounted towards the front panel (use different holes for mounting) for an easy disk access. Also, the Drive Mask has to be removed. To remove the Drive Mask, it is necessary to remove the entire bottom cover.

Most of the removable disk drive is mounted with milli-threaded screws. In such a case, use the separately packaged milli-threaded Metal Props and screws instead of inch-threaded ones. The rest of mounting procedure is the same as the hard disk.



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